

Development of a Cooperative Land Cover Map: Final Report

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Florida's Wildlife Legacy Initiative Project 08009

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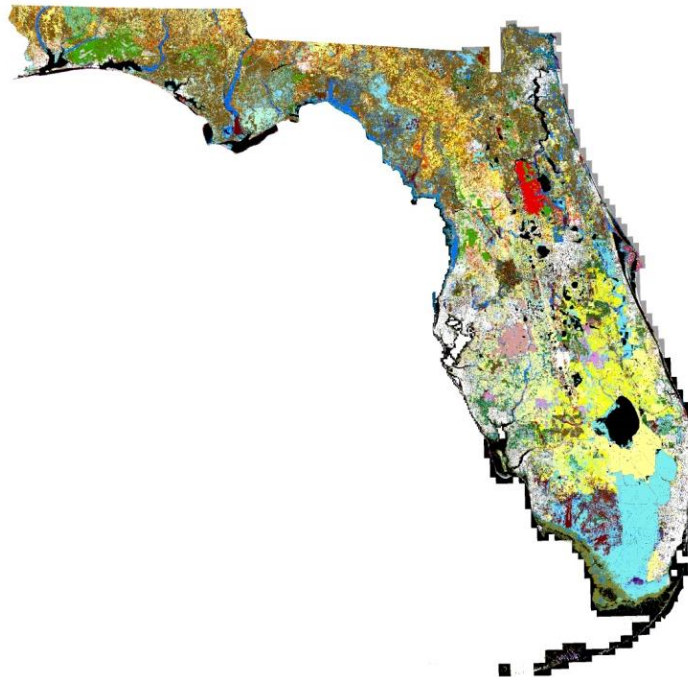
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ABSTRACT

The Cooperative Land Cover Map project is a partnership between Florida Natural Areas Inventory (FNAI) and Florida Fish and Wildlife Conservation Commission (FWC) to develop an improved statewide land cover map from existing sources and expert review of aerial photography. The project is directly tied to a goal of the *Florida Comprehensive Wildlife Conservation Strategy* (Strategy) to represent Florida's diverse habitats in a spatially-explicit manner.

We collected land cover and vegetation data from 37 existing sources including many site-specific natural community maps. Each dataset was evaluated for consistency and quality and assigned a confidence category that determined how it was integrated into the final land cover map. We revised data for eight focal communities by inspecting areas that potentially include these communities with high-resolution aerial photography. All data were crosswalked into the Florida Land Cover Classification System.

New statewide data for focal communities consist of 429,700 acres of scrub, 82,400 acres of scrubby flatwoods, 812,200 acres of sandhill, 154,000 acres of dry prairie, 16,600 acres of pine rockland, 19,200 acres of rockland hammock, 1,576,200 million acres of mesic flatwoods, 166,400 acres of upland pine and 40 acres of upland glade. The final land cover map includes over 6 million acres derived from local, regional and site-specific sources and 1.4 million acres classified during aerial photo review. The remaining area (32 million acres) consists of Land Use Land Cover data developed by the Florida Department of Environmental Protection, St. Johns River Water Management District, Southwest Florida Water Management District and South Florida Water Management District.

The Cooperative Land Cover Map fills a priority data gap of the Strategy for improved habitat mapping. In addition it provides significantly improved data for scrub and sandhill, priority habitats of the Strategy. The map will inform a variety of conservation and management activities in Florida.

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INTRODUCTION

Ecologically-based land cover information is an essential tool for conservation planning. In Florida, statewide land cover maps provide a foundation for conservation planning efforts such as the Florida Forever Conservation Needs Assessment (Knight et al. 2000) and Critical Lands and Waters Identification Project (Hector et al. 2008) which identify priority areas to protect rare species habitat, imperiled natural communities and landscape connections. Land cover maps are also important for land managers who must plan for prescribed fire, invasive species control, and other natural community-based management activities.

A stated goal of the *Florida Comprehensive Wildlife Conservation Strategy* ([Strategy]; FWC 2005) is to represent Florida's diverse habitats in a spatially-explicit manner. The Strategy has specifically identified improved land cover mapping as a priority data gap. Although a wealth of land cover data exists for Florida, the shortcomings of statewide land cover have compelled various planning efforts to independently create hybrid land covers from multiple sources (Knight et al. 2000, FWC 2005, Nicholson et al. 2007), resulting in a confusing array of modified, albeit similar, data and potentially redundant efforts.

In Florida, existing land cover sources vary in classification scheme (land use emphasis vs. ecologically-based land cover), extent (site-based vs. statewide mapping), time-frame, resolution, and accuracy. Although no single system is adequate for all purposes, the strengths of different systems would be enhanced by combining and synthesizing them. Site-specific natural community maps and other vegetation data have been developed by biologists and land managers for many conservation lands and could be integrated into a statewide layer. These types of data are based on local knowledge and often ground-truthed, increasing their accuracy over remotely-sensed data. In addition, time-frame for data on conservation lands is less of an

issue because land conversion is unlikely. Florida Natural Areas Inventory (FNAI) has developed detailed, ground-truthed natural community maps on more than 2 million acres of conservation lands managed by state, local and federal agencies. These data have been used to improve the statewide mapping of under-represented ecosystems, a natural resource targeted by the Florida Forever conservation land acquisition program, and could be incorporated into statewide land cover.

The FNAI natural community classification system (FNAI 2010a) is used widely by ecologists and land managers in Florida. Lands managed by the state are required to use the FNAI system; however, current statewide land cover is inadequate for mapping many communities, including scrub and sandhill. These communities, which are difficult to consistently classify with remote-sensing techniques, have been identified as priority habitats by the Strategy. Revisions to these and other imperiled communities would enhance the ability to protect and manage these areas and the rare species that depend on them.

This project addresses the gap in statewide land cover by developing a new hybrid land cover that integrates good local land cover sources with the best available statewide data – the Cooperative Land Cover Map. In addition, we specifically target priority habitats of the Strategy, including scrub and sandhill, for revision through review of aerial photography. Our objective is to produce a single statewide map that has broad support and can be used by a diverse group of planners and managers.

METHODS

We divided the project into three major tasks: 1) collection and evaluation of existing sources of land cover data; 2) revision of focal natural communities through aerial photograph review; and 3) crosswalk and assemblage of all sources into a final statewide land cover map.

Source Data Collection and Evaluation

Statewide Sources.— We obtained statewide land cover from 2 primary sources: 1) Florida Fish and Wildlife Commission (FWC) Florida Vegetation and Land Cover (FLVEG) which includes 43 vegetation and land use classes and is derived from 2003 Landsat Enhanced Thematic Mapper+ Imagery with a pixel size of 30 m (Stys et al. 2004); and 2) Water Management District Land Use Land Cover data based on the Florida Land Use and Forms Classification System (DOT 1999 [FLUCCS]) and delineated based on aerial photography. FLUCCS data varied for each district in the year created and level of detail in the classification. We combined the most current data into a single statewide FLUCCS dataset with year of data development as follows: 2004 for Northwest (NWF), St. Johns (SJR) and South Florida (SF) districts; 2006 - 2008 for Suwannee River (SR) district; and 2007 for Southwest (SWF) district. Methods for using statewide sources are discussed in the Focal Natural Community Revisions and Assemblage of the Cooperative Land Cover Map sections below.

Local Sources.— We solicited local, regional and site-specific datasets via listserv, direct email, telephone and word-of-mouth. Potential sources were suggested by FNAI staff who work with land managers across the state. We also collaborated with Craig Faulhaber, the FWC Florida Scrub-Jay Coordinator, to obtain additional scrub-related datasets. Additional contacts were made through general networking and publicly presenting the project at several meetings.

We evaluated datasets based on metadata, discussions with data providers and a general review of the spatial accuracy and classification. Based on this review we assigned a confidence category to each dataset that indicated how or if the dataset, or certain classes within the dataset, would be integrated into the final land cover map. A confidence category of 1 indicates the highest level of confidence; these data spatially superseded all other intersecting sources.

Category 2 data took precedence over statewide datasets (FLUCCS, FLVEG) but did not supersede category 1. Category 3 data were used with review and revision. Category 4 data were used to identify additional areas for aerial photo review and help interpret classification during the review process; these data, however, were not directly integrated into the final map. (Fig.1; Table 1).

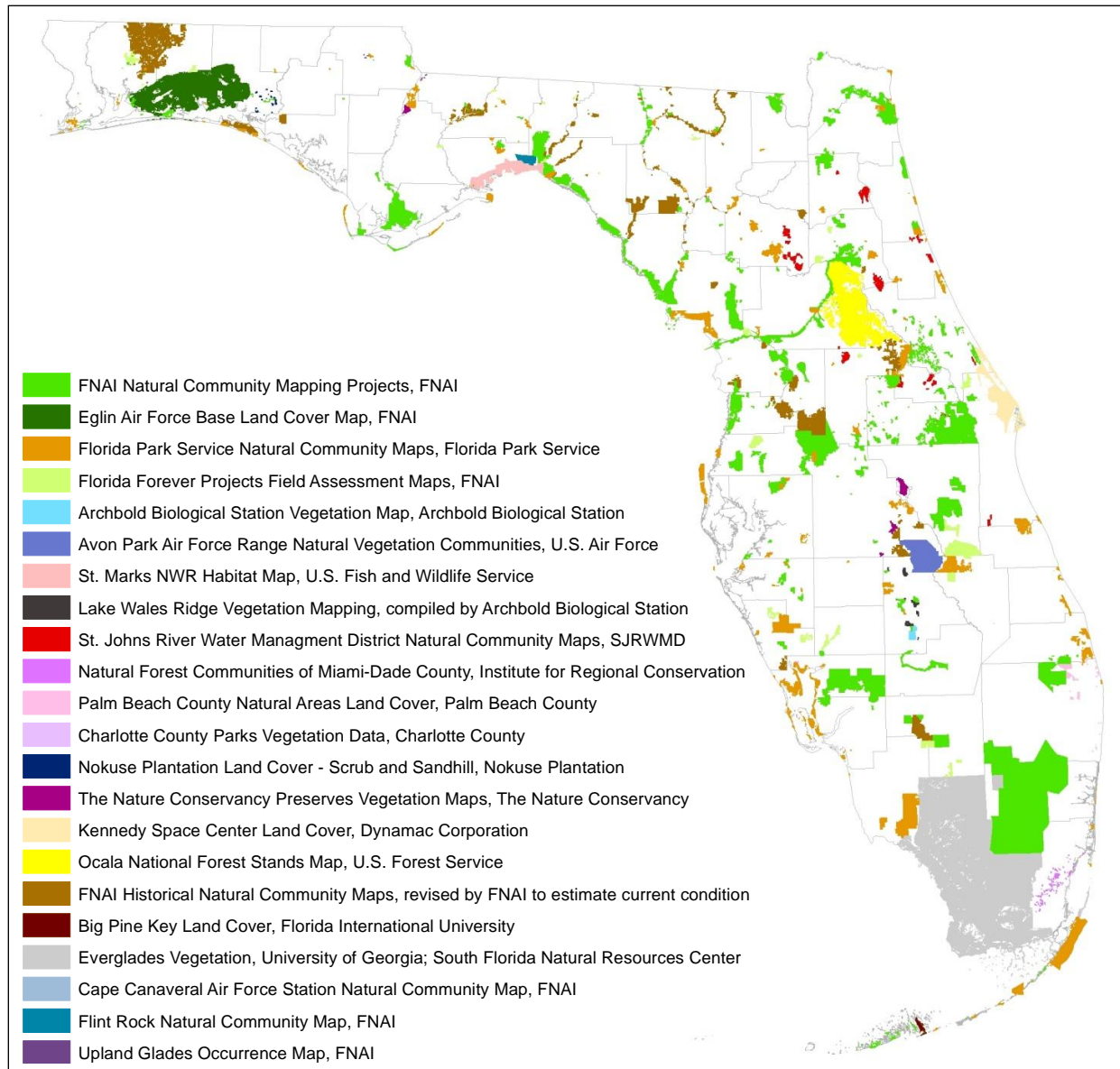


Figure 1. Sources of local and regional land cover data that were integrated into the cooperative land cover map.

Table 1. Land cover sources compiled for the Cooperative Land Cover Map

Description	Data Provider	Date	Confidence	Acres Used
Natural Community Mapping Projects	Florida Natural Areas Inventory (FNAI)	2003 - 2010	1	2,238,485
Eglin Air Force Base Land Cover Map	FNAI	1997	1	361,072
Avon Park Air Force Range Natural Vegetation Communities	Avon Park Air Force Range	1999	1	108,375
St. Marks National Wildlife Refuge Habitats	U. S. Fish and Wildlife Service	2004 - 2009	1	70,369
Flint Rock Natural Community Map	FNAI	2010	1	17,526
Cape Canaveral Air Force Station Natural Community Map	FNAI	2009	1	12,951
Lake Wales Ridge Vegetation Mapping	Archbold Biological Station; Florida Natural Areas Inventory; The Nature Conservancy	2000 – 2002	1	9,978
Archbold Biological Station Vegetation Map	Archbold Biological Station	2007	1	8,817
Big Pine Key Land Cover	Hurricane Research Center at Florida International University	2009	1	6,531
Natural Forest Communities of Miami-Dade County	Institute for Regional Conservation	2005 - 2009	1	2,820
Upland Glades Occurrence Map	FNAI	2007	1	40
Florida Park Service Natural Community Maps	Florida Park Service	1997 - 2009	2	584,090
Florida Forever Projects Field Assessment Maps	FNAI	2001 - 2010	2	151,827

Table 1. Continued.

Description	Data Provider	Date	Confidence	Acres Used
Kennedy Space Center Land Cover	Dynamac Corporation	2003	2	97,756
St. Johns River Water Management District Natural Community Maps	St. Johns River Water Management District	2004 - 2009	2	67,601
Nature Conservancy Preserves Vegetation Maps	The Nature Conservancy	1999 - 2007	2	22,196
Palm Beach County Natural Areas Land cover	Palm Beach County	2003 - 2007	2	15,180
Nokuse Plantation Land Cover	Nokuse Plantation	2009	2	1,256
Charlotte County Parks Vegetation Data	Charlotte County	unknown	2	774
Water Management District Land Use Land Cover	St. Johns, Southwest and South Florida Water Management Districts; Florida Department of Environmental Protection	Varies, 2004 - 2008	3	32,141,367
Everglades Vegetation	University of Georgia; South Florida Natural Resources Center of Everglades National Park	1999	3	1,441,163
Historical Natural Community Mapping Projects	FNAI	2004 - 2006	3	543,895
Ocala National Forest Stands Map	U. S. Forest Service	unknown	3	285,305
Florida Vegetation and Land Cover	Florida Fish and Wildlife Conservation Commission	2003	4	
David Breininger Scrub Polygons	Kennedy Space Center	1999, 1994	4	1,290
Florida Keys Advanced Identification of Wetlands Land Cover	FWC/Florida Wildlife Research Institute	1991	4	5,057

Table 1. Continued.

Description	Data Provider	Date	Confidence	Acres Used
Sarasota County Apoxsee Habitat Layer	Sarasota County	2007	4	N/A
Scrub Soils for Five Southwest Counties	David Gordon, Quest Ecology	2005	4	N/A
Brevard County Land Cover	Brevard County	2002	4	N/A
Lake County Scrub-Jay Habitat Survey	Lake County	2009	4	N/A
Natural Communities of Camp Blanding Military Reservation	FNAI	1993	4	N/A
Tate's Hell Historic Vegetation	FNAI	2000	4	N/A
Statewide Scrub-Jay Habitat	Archbold Biological Station	1992-1993	4	N/A
Hillsborough County Land Use	Hillsborough County	2008	Not used	N/A
Pasco County Land Use	Pasco County	2007	Not used	N/A
Stormwater Treatment Areas Vegetation Map	South Florida Water Management District	2005	Not used	N/A
Lower Suwannee Floodplain Vegetation	U. S. Geological Survey	2002	Not used	N/A

Local Source Data Descriptions and Modifications.— All sources that were incorporated into the final land cover map were crosswalked into the Florida Land Cover Classification System (Kawula 2009; [FLCS]; Appendix A). The majority of local data sources used the FNAI natural community classification or a close approximation (FNAI 1990, 2010a). A collective FLCS crosswalk for these sources is shown in Appendix B. Prior to final publication of the FLCS, we crosswalked source data based on custom classifications into the FNAI system; these were then easily translated into the FLCS to create the final Cooperative Land Cover Map. Crosswalk tables for these sources are provided in Appendices listed below with the source descriptions.

We used a set of standard geoprocessing and topology operations in ArcGIS 9.3 to ensure no overlapping features within or among datasets. All data were projected into the Florida Albers custom coordinate system with NAD 1983 HARN datum. We applied a minimum mapping unit of 0.5 acres and dissolved each polygon <0.5 acres into its largest neighboring polygon except for scrub, pine rockland and upland glade polygons for which we applied a minimum mapping unit of 0.1 acres. Finally, lines between neighboring polygons with the same classification were dissolved. Based on our review of each dataset, we sometimes made other modifications as described below.

FNAI Natural Community Mapping Projects. – These data were developed by FNAI as part of natural community mapping projects for a variety of land managing agencies during 2003 - 2010. Boundaries were delineated based on extensive field surveys and interpretation of the most recent aerial photography available at the time of the survey. In areas of overlap between sites we kept the most recent dataset (e.g., Majorie Harris Carr Cross Florida Greenway (2008 data) superseded Caravelle Ranch

Wildlife Management Area (2003) in areas of overlap along the boundary of these sites). To the extent practicable we also crosswalked data classified according to the 1990 version of the FNAI Guide to Natural Communities (FNAI 1990) into the revised version published in 2010 (FNAI 2010a).

Eglin Air Force Base Land Cover Map. – These data were developed by FNAI based largely on extensive field work conducted by FNAI in 1997 to map tiers of ecological condition for the U. S. Air Force (Kindell et al. 1997). Other data sources such as 1995 aerial photography, National Wetlands Inventory and FNAI Element Occurrence Data were used to complete the GIS map. According to a biologist we contacted at Eglin, the map is still valid and used by the Air Force. The polygons are classified into Ecological Groups, most of which correspond to FNAI natural community types. Several Ecological Groups, however, represent a combination of disturbed land uses. These areas (23% of the data) were not included and will be superseded by FLUCCS data in the final land cover.

Avon Park Air Force Range Natural Vegetation Communities. – These data were developed by ecologists at Avon Park Air Force Range in 1999 using a custom classification scheme. Although many of the classes were a finer resolution than the FNAI classification, they were successfully crosswalked (*i.e.*, rolled up) into FNAI classes and then into FLCS classes (Appendix C). As a result, however, some detail associated with the original data is not represented in the final land cover map.

St. Marks National Wildlife Refuge Habitats. – These data were initially developed in 1989, substantially updated based on 1999 and 2004 aerial photography and continually revised since then by a refuge biologist, who had assigned an FNAI class to

each polygon. We assisted the biologist with repairing geometry and cleaning the data of overlaps, gaps and slivers.

Flint Rock Natural Community Map.— These data were developed by FNAI in 2010 during an evaluation of flatwoods salamander habitat at the Shine Foundation’s Flint Rock property and The Nature Conservancy’s Flint Rock Preserve. Many areas were ground-truthed during field surveys. Thinned pine plantation was classified as mesic flatwoods to reflect the management goals and progress by the Nature Conservancy in restoring the site.

Cape Canaveral Air Force Station Natural Community Map.— These data were developed by FNAI in 2009 as part of a survey for the U. S. Air Force to locate high quality areas for preservation of maritime hammock habitat (Gulledge et al. 2009). The polygons were delineated based on 2009 digital aerial photography, 1943 georectified aerial photography and 2007 LiDAR-derived digital elevation and canopy height models, in conjunction with ground-truthing. Although most of the data were either based on the FNAI classification or easily crosswalked to it, one class – “mangrove or exotics” – contained multiple land cover types. We edited this class using existing Kennedy Space Center Land Cover to separate natural mangrove swamp from exotics and other disturbed habitat types.

Lake Wales Ridge Vegetation Mapping.— These data were compiled by Archbold Biological Station and consist of ground-truthed vegetation mapping from 2000 – 2002 for 8 sites managed as part of the Lakes Wales Ridge Wildlife and Environmental Area. The data were originally classed using the Lake Wales Ridge Vegetation Classification System, which we crosswalked into the FLCS.

Archbold Biological Station Vegetation Map.— These data are based on a detailed ground survey and vegetation mapping effort (Abrahamson et al. 1984) on Archbold Biological Station (ABS); the map was converted to GIS shapefile in 2007 by ABS staff. The original classification closely corresponds to the FNAI system and was easily crosswalked into the FLCS.

Big Pine Key Land Cover.— These data were developed as part of a project titled “Prediction of Pine Forest Changes in the Florida Keys Due to Sea Level Rise” by researchers at the International Hurricane Research Center at Florida International University (FIU). The land cover is derived from 2006 high-resolution infrared aerial orthophotos and 2007 LiDAR based digital elevation and canopy models followed by extensive ground-truthing in 2009. The original classification was adapted from a hierarchical vegetation classification of major Florida Keys’ plant communities (Ross et al. 1992). The data were crosswalked to the FLCS using descriptive information provided by FIU and aerial photo inspection (Appendix D).

Natural Forest Communities of Miami-Dade County.— These data represent field work conducted by the Institute for Regional Conservation in collaboration with Miami-Dade County Department of Environmental Resources Management and the U. S. Fish and Wildlife Service (Bradley et al. 2005, updated ca. 2009). Natural forest community sites were delineated in the field or from 2007 aerial photography and classified as either rockland hammock or pine rockland, which directly crosswalk to the FLCS.

Upland Glades Occurrence Map.— These data were mapped by FNAI from field surveys and 2007 aerial photography and represent all known occurrences of the upland glades community.

Florida Park Service Natural Community Maps.— These data were developed by Florida Park Service (FPS) biologists over a range of years (1997 – 2009) using the FNAI classification. Although the data vary in spatial and classification accuracy we decided that the maps better represented sites ecologically than a statewide system such as FLUCCS. We coordinated with Brady Harrison at FPS, to correct some classification errors; we corrected others throughout the course of the project as we discovered them. Some FPS sites had spatial alignment issues which we corrected for much of Kissimmee Prairie Preserve State Park, an important site for dry prairie. Some park maps identified disturbed areas such as pastures and citrus groves with the pre-disturbance natural community type. Although we recognize that the long-term goal is to restore these areas, we wanted to reflect the current condition and adjusted the maps for Lake Louisa State Park and San Felasco Hammock Preserve State Park. We reviewed polygons that originally were classified as Ruderal with no indication of disturbance type with aerial photography and assigned a class from the FLCS.

Florida Forever Projects Field Assessment Maps.— These data were developed by FNAI during cursory field surveys on private lands proposed for acquisition by the Florida Forever conservation land acquisition program. The surveys were conducted over a range of years (2001 – 2010). The primary goal of the maps was to identify and calculate the acreage of high quality and/or rare natural communities; therefore, the maps

vary in completeness. We extracted data from the maps that could be directly crosswalked to the FNAI classification.

Kennedy Space Center Land Cover.— These data were developed based on 2003 aerial photography and site specific ground knowledge by Ron Schaub, Dyanmac Corporation, for Kennedy Space Center, Merritt Island National Wildlife Refuge, Canaveral National Seashore, and Cape Canaveral Air Force Station. The classification is a custom scheme which is partly derived from FLUCCS. We crosswalked the data into the FLCS by inspecting a subset of polygons with aerial photography to determine the best fit with the FNAI system (Appendix E). Data that overlapped the Cape Canaveral Air Force Station Natural Community Map were excluded.

St. Johns River Water Management District Natural Community Maps.— These are data developed by SJRWMD biologists for lands managed by the district. The data were developed over a range of years and represent ground knowledge of the sites. The original data were based on the FNAI classification. We reviewed polygons labeled as ‘ruderal’ and assigned a class from the FLCS. We also re-classified some polygons where 2009 aerial photography indicated a land use change, especially for natural classes now in intensive silviculture. We excluded polygons that originally were never assigned a land cover type.

Nature Conservancy Preserves Vegetation Maps.— These are data developed by Nature Conservancy (TNC) biologists for four TNC preserves. The data were developed over a range of years (1999 – 2007) based on the FNAI classification and represent ground knowledge of the sites. For the Apalachicola Bluffs and Ravines

Preserve, we only obtained polygons for sandhill. We created and classified polygons for the remainder of the site based on aerial photo review.

Palm Beach County Natural Areas Land Cover.— These are data developed by Palm Beach County from 2003 - 2007 for the lands they manage, using the FNAI classification system. In the original data, approximately 10% (1,500 acres) of natural communities were described as “disturbed”, e.g., disturbed mesic flatwoods. We crosswalked these to their respective natural community types.

Nokuse Plantation Land Cover.— These are ground-truthed data for sandhill and scrub developed in 2009 by biologists at Nokuse Plantation. We included the data without modification.

Charlotte County Parks Vegetation Data.— These are data developed by Charlotte County for 4 sites they manage, using the FNAI classification system. The date of data development is unknown.

Everglades Vegetation.— These data were developed in 1999 by the Center for Remote Sensing and Mapping Science, Department of Geography at the University of Georgia and the South Florida Natural Resources Center at Everglades National Park using the hierarchical Everglades Vegetation Classification System (Welch and Madden 1999). The data were developed from photointerpretation of 1994 – 1995 color infrared aerial photographs and GPS-assisted field observations. We crosswalked Everglades classes to the FNAI system based on vegetation descriptions in the Everglades data (Appendix F). Approximately 33% of the original data (844,000 acres) had a one-to-many correspondence (e.g., Everglades ‘palm savanna’ could be FNAI marl prairie,

mesic flatwoods or hydric hammock) and could not be crosswalked. These areas were not included and will be superseded by FLUCCS data in the final land cover.

Historic Natural Community Mapping Projects.— These data were developed by FNAI from 2004 – 2010 for a variety of land managing agencies based on ca. 1930 – 1950 aerial photographs and field surveys. Polygons were classified based on historical ground condition using the FNAI system. We updated the maps to current status based on recent disturbance information from FLUCCS or aerial photography. Many historically natural areas are today pasture or pine plantation. We were cautious, however, in assigning plantation. FNAI biologists who had visited the sites and had knowledge of ground cover condition, restoration activities or management intent advised that some sites with planted pine were functioning ecologically as the original natural community. Thus some areas that are coded as coniferous plantation by FLUCCS were classified as a natural community by FNAI.

Ocala National Forest Stands Map.— These data were developed by the U.S. Forest Service and represent stand delineations coded by forest type. We selected sand pine, oak scrub, and longleaf forest types to represent scrub and sandhill in the final land cover map. Although these are planted stands, the forests function as natural communities and are managed to support rare species such as Florida scrub-jay. The data, however, should be interpreted with caution because the planted tree species may not always be characteristic of the former natural community.

David Breininger Scrub Polygons.— These data were developed by David Breininger, Lead Wildlife Ecologist for Ecological Programs at Kennedy Space Center as part of his Florida scrub-jay research in east central Florida, primarily Brevard County

(Breininger 2003, Breininger et al. 2006). Polygons were delineated from 1999 and 1994 aerial photography and classified by habitat type as oak scrub, palmetto-oak or palmetto. Because we obtained these data after completing draft scrub, scrubby flatwoods and sandhill data for this region, we used the Breininger data to supplement the existing data for scrub. We selected polygons classified as oak scrub that did not intersect existing data and reviewed and classified them using 2009 high-resolution aerial photography. Note that these data are included in the acreage totals for “FNAI review” rather than “Local Sources” elsewhere in this report.

Florida Keys Advanced Identification of Wetlands Land Cover.— These data were developed by the FWC/Florida Wildlife Research Institute from color infrared and true color aerial photo interpretation. The dataset uses a classification scheme that initially appeared to crosswalk well with the FNAI system. We first selected classes that potentially could be pine rockland or rockland hammock and verified this through aerial photo review. Then we attempted a comprehensive crosswalk for other classes and discovered accuracy problems with the spatial delineation and consistency of classification. Only data that we confirmed as pine rockland and rockland hammock were used in the final land cover. Note that these data are included in the acreage totals for “FNAI review” rather than “Local Sources” elsewhere in this report.

Sarasota County Apoxsee Habitat Layer.— This is a county-wide native habitat dataset developed for Sarasota County from 2007 true color aerial photography and ancillary data (Clark and Sauers 2008). Using aerial photography, we inspected a subset of polygons classified as sand pine scrub, scrubby flatwoods, dry prairie and turkey oak ridges and determined that a more thorough review was required in order to use the data.

The subset of classes listed above was included in the overall set of FLUCCS and other polygons to be reviewed with aerial photography; other portions of the data were not used. These data are included in the acreage totals for “FNAI review” rather than “Local Sources” elsewhere in this report..

Scrub Soils for Five Southwest Counties.— These data were created by David Gordon (2005) from USDA Natural Resources Conservation Services (NRCS) soils data and 2004 aerial photography as part of research on the distribution of Florida scrub-jay. Because the purpose of the data was to establish scrub-jay survey areas some non-scrub upland soils types that potentially support jays were included. This restricted our ability to use the data without thorough review. We included these data in the overall set of FLUCCS and other polygons to be reviewed with aerial photography. These data are included in the acreage totals for “FNAI review” rather than “Local Sources” elsewhere in this report.

Brevard County Land Cover.— This is a detailed county-wide land cover developed in 2002 by Brevard County Natural Resources Management using a modified FLUCCS classification and based on 1995 and 1999 aerial photography. The data were not current enough to be used without inspection. We included the Brevard County classes of xeric oak scrub and sand pine scrub in the overall set of FLUCCS and other polygons to be reviewed with aerial photography. These data are included in the acreage totals for “FNAI review” rather than “Local Sources” elsewhere in this report.

Lake County Scrub-Jay Habitat Survey.— These data represent a partial survey of Lake County by volunteers for suitable scrub-jay habitat. We obtained the data after we had completed a draft scrub map for Lake County. We selected polygons that

indicated the presence of scrub species and reviewed these with aerial photography. These data are included in the acreage totals for “FNAI review” rather than “Local Sources” elsewhere in this report.

Natural Communities of Camp Blanding Military Reservation. – These data were developed by FNAI in 1993 from extensive field surveys to represent high quality occurrences of scrub and sandhill on Camp Blanding. We used the data to select and classify corresponding FLUCCS polygons for inclusion in the final land cover map.

Tate’s Hell Historic Vegetation. – These data were developed by FNAI from 1953 aerial photography to depict historic vegetation types found in Tate’s Hell State Forest and adjacent lands proposed for acquisition (Kindell 2000). Tate’s Hell has been largely altered since 1953 so use of most of the historic data was not practical. We did however inspect polygons classified as scrub with 2007 aerial photography and included those still viable (most) in the final land cover.

Statewide Scrub-Jay Habitat. – These data were developed by Archbold Biological Station under contract to U. S. Fish and Wildlife Service to map statewide habitat for the Florida scrub-jay (Fitzpatrick et al. 1994). The Archbold survey team surveyed known and potential scrub-jay habitat locations throughout central Florida during 1992 – 1993. Sites were identified based on known scrub-jay locations, soil maps, and local experts. After surveying the sites, habitat polygons were drawn onto maps (usually Soil Conservation Service soil sheets), and digitized into GIS format. Because these data are based on scrub-jay occurrences they include some natural communities other than scrub. Moreover, the date and sometimes coarse delineation make these data unsuitable for use without thorough inspection. We included these data in the overall set

of FLUCCS and other polygons to be reviewed with aerial photography in southwest and south Florida. We did not track the acreage included in the final land cover.

Datasets not used.— We obtained four datasets that were not used in the project. The Hillsborough County Land Use heavily emphasized land use and lumped all natural land cover into a single class making it unsuitable for our purpose. The Pasco County Land Use was simply a subset of the 2000 SWFWMD FLUCCS and did not add anything to the project. The Stormwater Treatment Areas Vegetation Map contained detailed classes for open water vegetation that could not be easily crosswalked to the FLCS. Similarly, the Lower Suwannee Floodplain Vegetation contained detailed wetland vegetation descriptions. We determined that the benefit of incorporating the data did not outweigh the time required to crosswalk and therefore chose not to use these sources.

Focal Natural Community Revisions

We selected scrub, scrubby flatwoods, sandhill, dry prairie, pine rockland, rockland hammock, and to a more limited extent mesic flatwoods and upland pine, as natural communities in critical need of revision. Most of these types are also identified by the Strategy as Priority Habitats for improved mapping. We revised communities based on inspection of aerial photography. We conducted congruency analyses to help select subsets of data for inspection. We additionally, revised pine rockland and rockland hammock primarily by reviewing and crosswalking local source datasets. We also consider upland glade as a focal natural community because of its rarity and because the full extent of remaining upland glades has been mapped and field verified by FNAI ecologists working with local experts.

Congruency Analyses.— The statewide FLVEG and FLUCCS data were compared with each other and with FNAI ground-truthed natural community polygons. These data were

developed by FNAI as part of natural community mapping projects conducted for various agencies and include data for 2.2 million acres managed by FWC, Florida Division of Forestry, Southwest Florida Water Management District, Suwannee River Water Management District, Orange County, and some federally managed lands.

All datasets were converted to 30 m grid and analyzed using the COMBINE function of Spatial Analyst in ArcGIS 9.3. We examined agreement among datasets to determine which combination of FLUCCS and FLVEG classes had the highest potential to include the focal natural communities (except pine rocklands and rockland hammock). We constructed congruency matrices for six natural community types: scrub, scrubby flatwoods, sandhill, dry prairie, mesic flatwoods, and wet flatwoods (Appendix G).

The congruency matrices were used as a general guide for selecting FLUCCS and FLVEG classes to review. We did not review all classes that potentially contain a focal community. For example, although FLUCCS 4340 (Upland Mixed Coniferous/Hardwood), accounts for 46% of FNAI ground-truthed sandhill, statewide it covers 1.7 million acres, a potential review area that exceeds the scope of this project. We instead used the overlap of FLVEG with FLUCCS to focus our review on areas with the highest potential to be focal communities.

A congruency analysis was also created to evaluate the agreement between FLUCCS and FLVEG for scrub and sandhill classifications within the St. Johns River Water Management District (SJRWMD). We used the SJRWMD as a pilot area to test various mapping and review strategies.

Scrub and Scrubby Flatwoods.— Areas selected for review varied between different regions of the state, largely because of differences in FLUCCS classification between water management districts and also because of local ancillary data sources.

Based on congruency analyses we first selected a subset of FLUCCS polygons with high potential to be scrub (Table 2). The FLUCCS codes selected varied by district, primarily because in the southwest the classification is often limited to coarser level 2 FLUCCS codes. The FLUCCS polygons selected as potential scrub also had the potential to be scrubby flatwoods. In the SJR, we also included FLUCCS Pine Flatwoods within 1 mile of potential FLUCCS scrub or known scrub. All Pine Flatwoods were included for review in the SWF and SF districts (see dry prairie methods). Scrubby flatwoods are not prevalent in NWF and SR so we did not select Pine Flatwoods for review unless identified by another source as potential scrub.

We also reviewed areas that FLVEG identified as Xeric Oak Scrub or Sand Pine Scrub. In order to exclude isolated pixels from our review we buffered pixels by 100m and dissolved the buffers to approximate patches of habitat. Any pixels within buffers <25 acres were excluded from review. We selected FLUCCS polygons (excluding those previously selected for review) that overlapped the remaining FLVEG scrub (Xeric Oak Scrub and Sand Pine Scrub). Patches that were confirmed as scrub or scrubby flatwoods were represented by polygon-based features (i.e., a FLUCCS polygon or polygon digitized during the revision process).

Ancillary (category 4) datasets that identified scrub and scrubby flatwoods were inspected outside of FLUCCS polygons previously identified for review. These included David Breininger Scrub Polygons, Brevard County Land Cover, Sarasota County Apoxsee Habitat Layer, Scrub Soils for Five Southwest Counties, Statewide Scrub-Jay Habitat (Fitzpatrick 1994),

Lake County Scrub-Jay Habitat Survey and Tate's Hell Historic Vegetation (Table 1). In SWF, SF and SJR we inspected additional natural FLUCCS polygons that intersected scrub soils from the NRCS soil surveys database (Table 2). We chose soils types for review based on those that overlapped confirmed scrub data to a high degree: In SWF and SF these were Archbold, Duette, Paola, and St. Lucie; in the SJR, because of the high variability of scrub, we expanded the number of soil types to include Apopka, Archbold, Daytona, Electra, Orsino, Palm Beach, Paola, Pomello, and St. Lucie.

Sandhill.— We selected FLUCCS Longleaf Pine – Xeric Oak (FLUCCS code 4120) from all districts as potential sandhill for review. In addition we selected FLUCCS polygons that overlapped the Sandhill class of FLVEG. FLUCCS polygons that overlapped only isolated pixels of FLVEG were excluded using the buffering method applied to scrub. We included Turkey-oak Ridges identified by the Sarasota County Apoxsee Habitat Layer in the set of polygons to review.

Dry Prairie and Mesic Flatwoods.— Existing FLVEG and FLUCCS overestimate the extent of dry prairie by including open pine flatwoods, disturbed grasslands, and some wet prairies in the dry prairie classification. We limited the extent of areas to review for dry prairie based on an estimate of the pre-settlement extent of this community.

Pre-settlement dry prairie has been estimated by Bridges (2006) and covers portions of 11 counties in central Florida. Recent natural community mapping by FNAI has identified some patches of dry prairie near but outside the extent of the pre-settlement boundary. To ensure that we reviewed the true potential extent of current dry prairie we buffered known dry prairie and the pre-settlement extent by 10 km. The resulting boundary was used to limit the extent of our dry prairie review.

Within the review extent we selected FLUCCS polygons with high potential to be dry prairie based on our congruency analyses (Table 2; Appendix G). Of these, only polygons that contained $\geq 25\%$ of FLVEG Dry Prairie were selected for review. Review of these polygons also served as a review of mesic flatwoods in this region of the state where open flatwoods can resemble dry prairie, resulting in under-representation of the flatwoods community in statewide land cover.

Table 2. FLUCCS codes selected for aerial photo review based on congruency analyses.

FNAI natural community	FLUCCS class	Water Management District
Scrub, scrubby flatwoods	3220 – coastal scrub	NW, SR, SF
	4210 – xeric oak	NW, SR, SJR, SF
	4130 – sand pine	NW, SR, SJR, SF
	3200 – shrub and brushland	SW
	4100 – upland coniferous forest	SW
Scrubby flatwoods	4110 – pine flatwoods	SW
Sandhill	4120 – longleaf pine – xeric oak	NW, SR, SJR, SF, SW
Dry prairie	3100 – herbaceous ^a	SF, SW
	3200 – shrub and brushland	SF, SW
	2120 – unimproved pasture ^a	SF
	3210 – palmetto prairie	SF
	3300 - mixed rangeland ^a	SF

^aFLUCCS polygons selected only if $\geq 25\%$ overlap with FLVEG dry prairie

Aerial Photograph Review Protocol.— Areas within existing source data in categories 1 through 3 were excluded from the set of polygons to be reviewed. Scrub, scrubby flatwoods, sandhill, dry prairie and mesic flatwoods (in SWF and SF only) were reviewed simultaneously as a single set of review polygons. We inspected the review polygons as well as proximal areas with the latest high resolution aerial photography (2006 – 2009; Appendix H) and other ancillary data sources including aerial photography from 2004, 1999 and 1995, topographic maps, county soils maps and other land cover datasets. We reviewed areas at a scale of 1:5000 with a minimum mapping unit of 0.5 acres with exception to include smaller polygons for scrub and pine rockland. We spatially edited polygons and delineated new polygons where necessary to identify focal communities and then assigned the polygon a land cover type. We deleted polygons from the set of review polygons that did not represent priority communities and were otherwise correctly classified. We always assigned a land cover type to polygons classified as FLUCCS Coastal Scrub, Xeric Oak, Sand Pine, or Longleaf Pine – Xeric Oak; in addition almost all review polygons in the SWF and SF districts were assigned a land cover type. Any deleted polygon will default to its FLUCCS class in the final land cover map.

FNAI biologists familiar with the focal communities both on the ground and through aerial photo interpretation performed the initial polygon inspections. A second reviewer then re-inspected the polygons that were assigned as one of the focal communities. We also checked all locations from the FNAI element occurrence database that reference scrub, scrubby flatwoods, sandhill or dry prairie.

We identified areas that appeared to be functioning as viable natural communities. Areas that were historically scrub or sandhill but are now disturbed so that they likely no longer support their characteristic ecological elements or that have succeeded to another natural community type

were excluded or classified as another land cover type. We classified many former sandhills as successional hardwood forest. We classified pine plantation as scrub or sandhill where it appeared to function ecologically as a natural community. This was especially true of planted sand pine scrub which can tolerate a high degree of disturbance. We examined aerial photographs from 1995 and 1999 to help determine the level of past ground disturbance. We did not include small patches within residential areas, although if there appeared to be functional large patches within low density or rural residential areas we included them. We mapped only obvious patches of scrubby flatwoods. This community was sometimes difficult to distinguish from scrub and we did not follow strict criteria for distinguishing the two. For dry prairie we strictly followed the FNAI definition of treeless areas of low shrubs and grasses (FNAI 2010a) within the buffered historic dry prairie extent. Many prairie-like areas are pine flatwoods in which trees have been removed. To determine dry prairie from flatwoods we considered geographic position, shrub patterns, proximity of wetlands and overall landscape context.

Pine Rockland and Rockland Hammock. – Existing FLVEG and FLUCCS

underestimate the extent of pine rockland which now exists through much of its former range as small, remnant tracts surrounded by development. We used a combination of data sources to create a dataset encompassing remaining pine rockland and rockland hammock: 1) Natural Forest Communities of Miami-Dade County identifies boundaries of pine rockland and rockland hammock in the field and from aerial photographs. We inspected these for recent urban development; 2) Big Pine Key Land Cover identifies land cover types on Big Pine Key. We crosswalked these types into the FNAI classification and extracted pine rockland and rockland hammock; 3) Florida Keys Advanced Identification of Wetlands (ADID) Land Cover identified land cover for most of the Florida Keys. We inspected the hammocks, pinelands and

ridge/hammock classes with aerial photography and reclassified suitable habitat as rockland hammock or pine rockland; 4) Everglades Vegetation identified detailed vegetation communities for Everglades and Big Cypress National Parks. We were not able to directly crosswalk all types into the FNAI classification but were able to identify a large subset of polygons with potential to be pine rockland or rockland hammock. We further refined these data based on expert knowledge of the extent of these communities and on soils data; 5) the Florida Park Service natural community maps identified rockland hammock in several parks in Miami-Dade and Monroe counties; 6) FNAI natural community mapping projects identified rockland hammock within the Florida Keys Wildlife and Environmental Area; 7) the FNAI element occurrence database identified locations of pine rockland and rockland hammock as well as rare plant species that depend on these communities. We inspected locations that were not already included in other datasets and delineated boundaries for extant communities; 8) additional rockland hammock was identified during an expanded aerial photo review of the Keys (described below). These datasets were combined according to confidence categories (Table 1) into a final map of Pine Rockland and Rockland Hammock.

Florida Keys Natural Communities. – In the course of reviewing data for pine rockland and rockland hammock in the Keys we found that existing land cover was inadequate for several Keys communities. We initially attempted a complete crosswalk of the Florida Keys ADID Land Cover but were deterred by inconsistencies within the classification. We instead conducted aerial photo review for 17 FLUCCS classes in the Keys that did not have an obvious counterpart in the FNAI classification and/or could potentially contain rare coastal communities: 1730 – Military; 1800 – Recreational; 1810 – Swimming Beach; 1850 – Parks and Zoos; 1900 – Open Land; 3100 – Herbaceous (Dry Prairie); 3200 – Upland Shrub and Brushland; 4110 – Pine

Flatwoods; 4200 – Upland Hardwood Forest; 4340 – Hardwood/Coniferous Mixed; 5430 – Enclosed Salt Water Ponds Within Salt Marsh; 6172 – Mixed Shrubs; 6440 – Emergent Aquatic Vegetation; 6500 – Non-vegetated Wetland; 6510 – Tidal Flats; 7200 – Sand other than beaches; 7300 – Exposed Rock. In addition, we crosswalked all 6420 – Saltwater Marshes/Halophytic Herbaceous polygons in the Keys to Keys Tidal Rock Barren (FNAI 2010a).

A number of small keys were not included in either FLUCCS or Florida Keys ADID. Many of these support rare species or communities according to the FNAI Element Occurrence database. In order to represent these important areas in the land cover we digitized and classified communities for 2,421 acres of small islands, primarily in the lower Keys.

Creation of the Cooperative Land Cover Map

Modification of the Florida Land Cover Classification.—Our project is the first to apply the FLCS (Kawula 2009). We coordinated closely with Bob Kawula on development of the system which attempts to integrate both the FNAI natural community classification and FLUCCS classification. The system is designed to be flexible and FWC encouraged us to make adjustments as we applied it. As we attempted to crosswalk actual datasets to the FLCS, we made several modifications including adding new classes, adjusting the hierarchy of classes that resulted from these additions, and changing the names of some classes (Appendix A). In addition, we modified the recommended crosswalk of FLUCCS to the FLCS for some classes (Appendix I). To facilitate map display we also created a legend based on a collapsed version of the classification (Appendix A).

Assemblage of Datasets.—We separated the data into 3 components for assembly into statewide land cover: 1) Local Source data, which consisted of all local sources with confidence category 1 through 3; 2) FNAI Review data, which consisted of all datasets that we inspected

and classified through aerial photo review; and 3) FLUCCS. The SWFWMD published a new version of FLUCCS based on 2008 photography in spring 2010. Although we used 2007 FLUCCS for aerial photo review and comparative analyses in that district, we incorporated the 2008 data in the final land cover map. We converted all datasets into 15 m ESRI grids and combined them based on the following rules: 1) Local Source data with confidence category 1 and 2 superseded FNAI Review data; 2) FNAI Review data superseded Local Source data with confidence category 3; 3) all Local Source 1 through 3 and FNAI Review data superseded FLUCCS.

Outside Review

We printed posters of draft scrub and sandhill for a meeting of the Northeast Florida Scrub-Jay working group on 12 April 2010. Craig Faulhaber, FWC Scrub-Jay Coordinator, solicited feedback on behalf of the project and also provided independent review of an earlier draft. We revised the maps for scrub, scrubby flatwoods and sandhill based on this feedback.

RESULTS

The Cooperative Land Cover Map consists of 190 hierarchical classes totaling 39.5 million acres (Appendix A). The display legend consists of 44 classes (Fig. 2). We collected 37 sources of land cover data including 2 statewide sources - FLUCCS and FLVEG. Of the local and regional sources, 11 were in the highest confidence category of 1, 8 were in category 2, 4 were in category 3, 10 were in category 4 and used as ancillary data, and 4 others were not used (Table 1). Source data in categories 1 through 3 (6 million acres) met the criteria for inclusion in the final map (Fig. 3). We inspected aerial photographs for approximately 3.2 million acres that potentially included focal and Florida Keys natural communities. We assigned a land cover type

to 1.4 million acres that were included in the final map as “FNAI Review” data (Fig. 3). The remainder of the final land cover consists of FLUCCS data totaling 32 million acres.

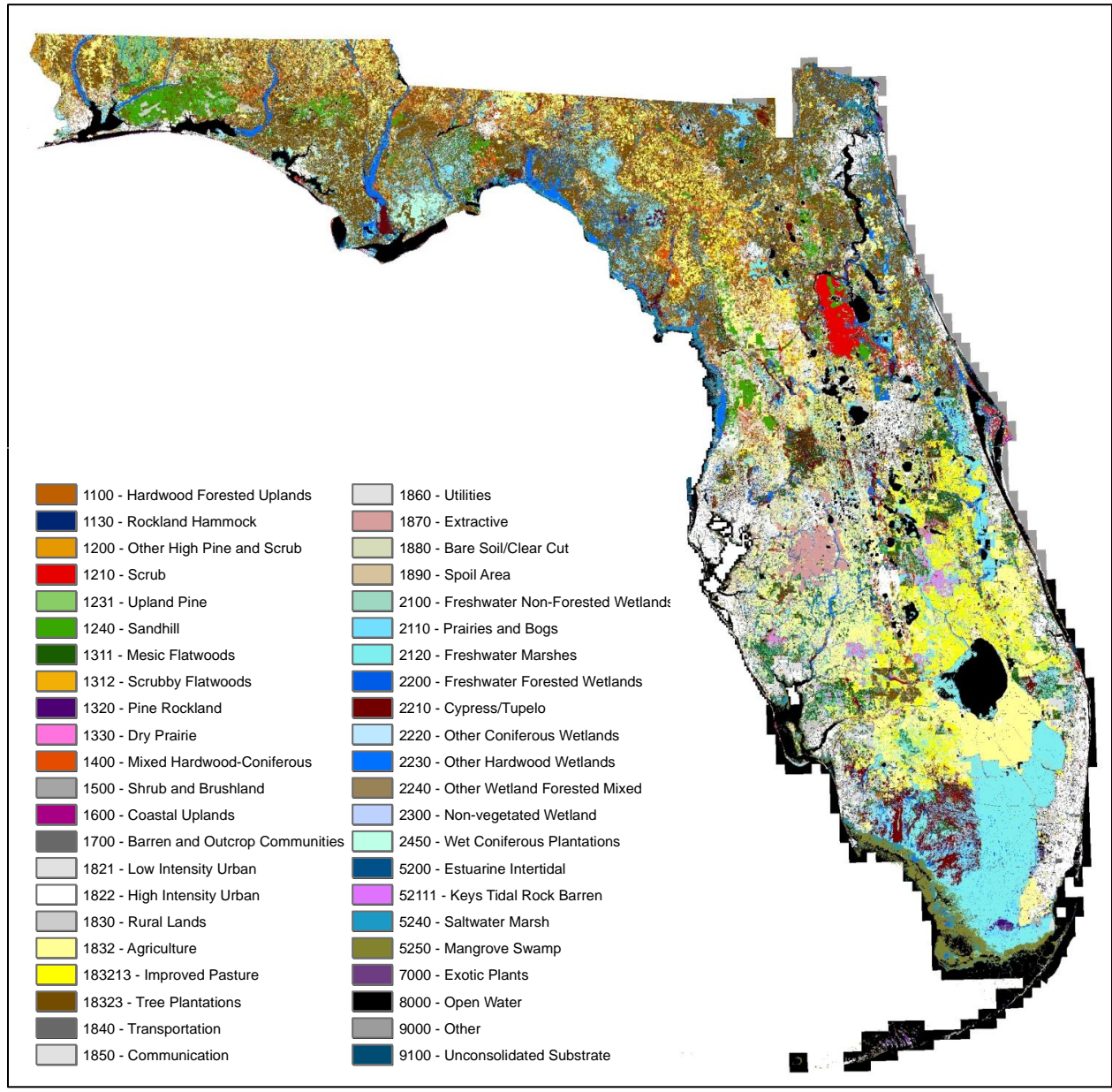


Figure 2. Cooperative Land Cover Map displayed with collapsed version of the Florida Land Cover Classification.

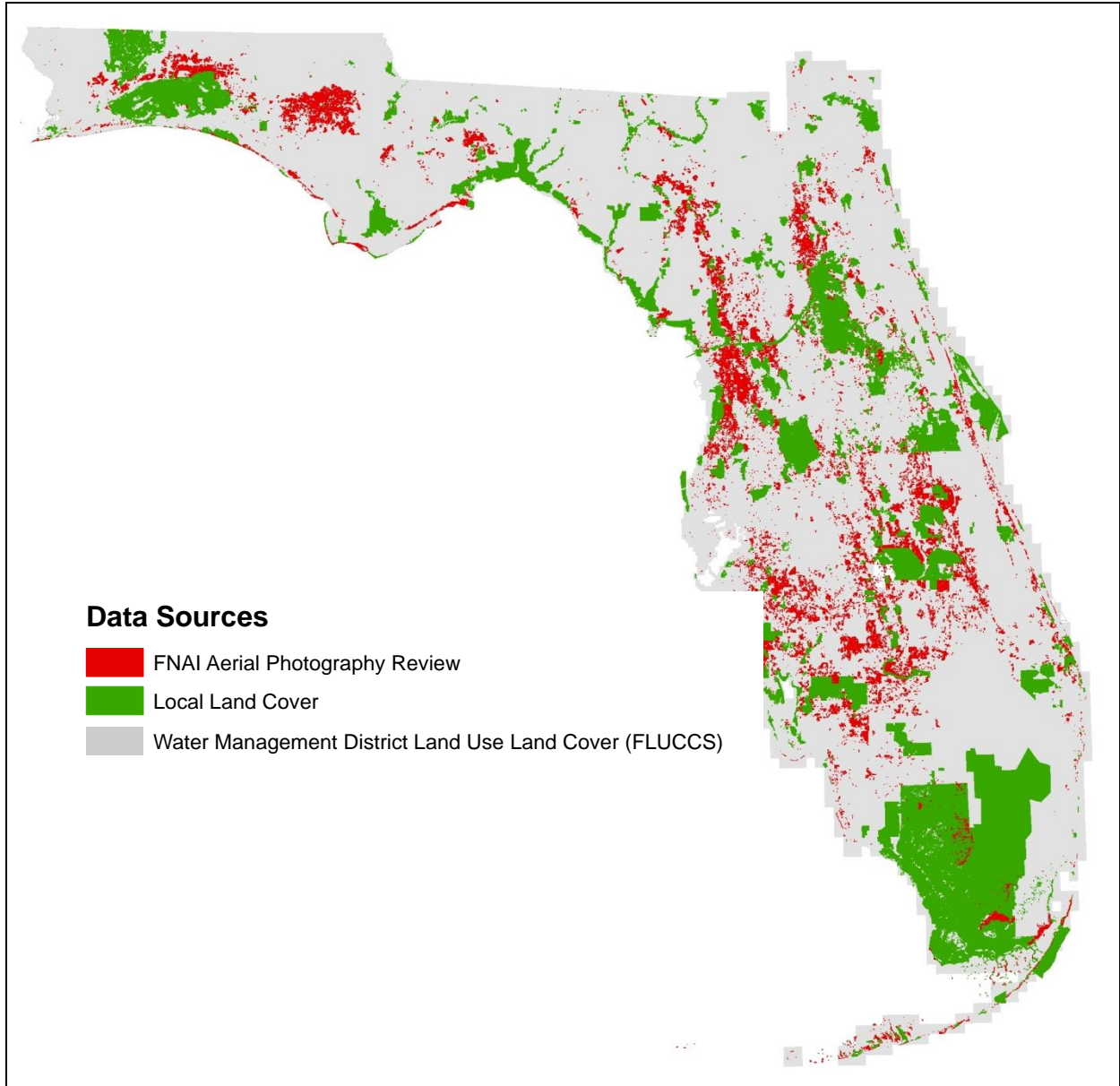


Figure 3. Sources of land cover data assembled to create the Cooperative Land Cover Map.

Focal Communities

Focal communities together make up 3.3 million acres of the total land cover. Forty-six percent (1.5 million acres) is derived from local land cover sources and 30% from aerial photo review. (Table 3; Fig. 4). The FLUCCS data contributing to Scrub (0.25% of total Scrub) and Sandhill (0.52% of total Sandhill) reflect areas that were inadvertently left out of the aerial photo review. Although mesic flatwoods was not comprehensively revised, significant improvements were made through aerial photo review in south and southwest Florida within the historic range of dry prairie where open flatwoods were often previously classified as dry prairie or other classes by statewide land covers.

Table 3. Statewide area (acres) for focal communities determined from local land cover sources and aerial photograph review.

Natural community	Data source			Total
	Local land cover	Aerial photo review	FLUCCS	
Scrub	302,418	126,331	918	429,669
Scrubby flatwoods	50,293	32,077	0	82,371
Sandhill	409,678	399,375	3,160	812,214
Dry prairie	83,196	70,838	0	154,034
Pine rockland	3,854	12,781	0	16,635
Rockland hammock	4,386	14,827	0	19,214
Upland pine	152,394	14,048	0	166,442
Mesic flatwoods	505,406	316,680	754,161	1,576,248
Upland glade	40	0	0	40

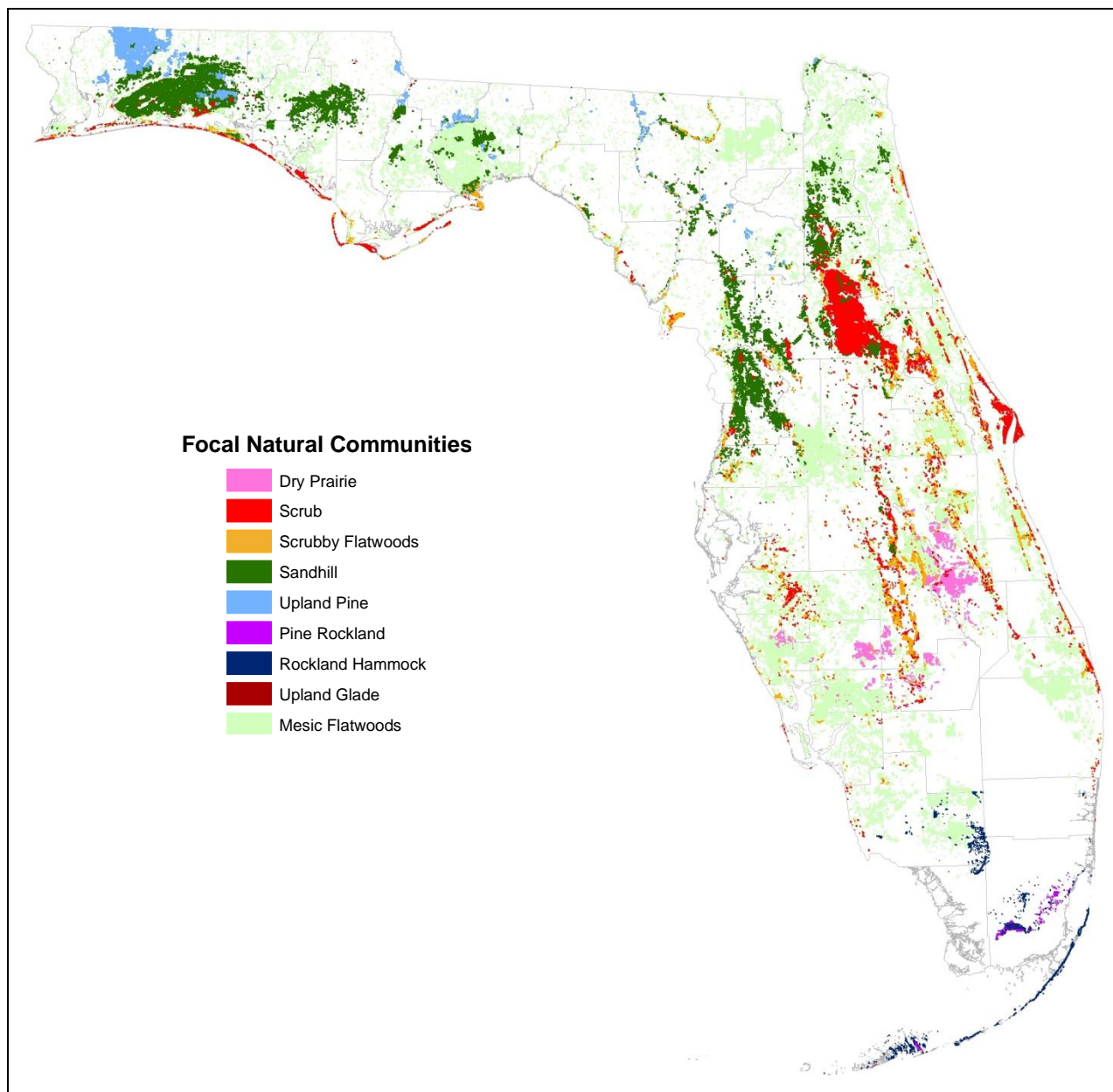


Figure 4. Distribution of nine natural communities in Florida derived from local land cover sources and aerial photograph review.

Comparison with FLUCCS and FLVEG

We compared the areas of each focal community mapped from local sources and FNAI review (hereafter referred to as Cooperative Land Cover [CLC] data) with the same areas mapped by FLUCCS and FLVEG. We conversely also compared classes that directly translate or were crosswalked to a focal community in FLUCCS and FLVEG with areas mapped by CLC. Tabular results of these analyses are shown in Appendices J through P.

Scrub. – FLUCCS classes that overlap with CLC Scrub vary widely in class type and amount of overlap among districts. The FLUCCS classes that were crosswalked to Scrub in the FLCS (FLCS code 1210) include Coastal Scrub, Sand Pine, and Xeric Oak but not all districts used these classes: SJR does not classify Coastal Scrub and SWF classifies at a higher level than other districts and therefore excludes all 3 classes. Of the 3 potential FLUCCS scrub classes, only Sand Pine in SJR and Coastal Scrub in NWF explained more than 25% of CLC Scrub in any district. The classes that most consistently overlapped with CLC Scrub across all districts were Shrub and Brushland and Pine Flatwoods.

In the reverse comparison, areas mapped as FLUCCS Xeric Oak consistently overlapped (67 – 74%) with CLC Sandhill instead of Scrub in all districts within the primary range of sandhill. FLUCCS Coastal Scrub and Sand Pine were overall more consistent than Xeric Oak with CLC Scrub except in SR where almost all FLUCCS Sand Pine corresponded with CLC Upland Pine or Coniferous Plantation.

Statewide, CLC Scrub contained almost 100,000 more acres than FLVEG Xeric Oak Scrub and Sand Pine Scrub combined. Of the total CLC Scrub, 57% was mapped as Xeric Oak Scrub or Sand Pine Scrub by FLVEG. Of the total areas mapped by FLVEG as Sand Pine Scrub

and Xeric Oak Scrub, 82% and 58%, respectively, were mapped as CLC Scrub. See Appendix J for scrub comparisons.

Scrubby Flatwoods. – FLUCCS Shrub and Brushland and Pine Flatwoods contributed to the top 50% of overlap with CLC Scrubby Flatwoods in SJR, SF and SWF, although in SF Unimproved Pasture accounted for most of the overlap (23%). Results were more variable in NWF and SR where scrubby flatwoods is not as common. The FLVEG classes that overlap most with CLC Scrubby Flatwoods were Pinelands (25%), Dry Prairie (20%) and Xeric Oak Scrub (16%). Because no FLUCCS or FLVEG classes directly crosswalk to scrubby flatwoods we did not do the reverse analysis of comparing the overlap of CLC classes with FLUCCS or FLVEG potential scrubby flatwoods. See Appendix K for scrubby flatwoods comparisons.

Sandhill. – The FLUCCS class that made up the highest percentage overlap with CLC Sandhill in each district differed among all 5 districts. Only in SWF did >50% of CLC Sandhill overlap with FLUCCS Longleaf Pine – Xeric Oak; in all other districts overlap was less than 25%. Hardwood Coniferous-mixed and Xeric Oak together contributed 27 to 40% of the overlap in SR, SJR and SF.

In the reverse comparison, FLUCCS Longleaf Pine – Xeric Oak overlapped >60% with CLC Sandhill in all districts within the primary range of sandhill. In SF where sandhill is less common, 40% of Longleaf – Xeric Oak was mapped as CLC Sandhill and 32% as CLC Scrub.

Statewide, FLVEG Sandhill has approximately 47,000 more acres than was mapped by CLC Sandhill. Fifty-eight percent of the areas mapped as CLC Sandhill were mapped as FLVEG Sandhill. Of the total Sandhill mapped by FLVEG, 61% was classed by CLC as Sandhill. See Appendix L for sandhill comparisons.

Dry Prairie. – CLC Dry Prairie was consistently classified into 3 FLUCCS classes within the range of dry prairie (Bridges 2006): Unimproved Pastures (91% overlap in SJR, 40% overlap in SF); Shrub and Brushland (16% overlap in SJR; 91% overlap in SWF); and Palmetto Prairies (48% overlap in SF). The FLUCCS class 3100, described as “Herbaceous (Dry Prairie)”, did not correspond well to CLC Dry Prairie, with 0% overlap in SJR, 9% in SWF, and 10% in SF.

Statewide, CLC mapped 154,000 acres of Dry Prairie. FLVEG contains 1.2 million acres of Dry Prairie, an acknowledged overestimate. Of the areas mapped as CLC Dry Prairie, 79% correspond to FLVEG Dry Prairie. See Appendix M for dry prairie comparisons.

Pine Rockland and Rockland Hammock. –Pine rockland is only found in Miami-Dade County and the Florida Keys and was not explicitly classified by either FLUCCS or FLVEG. Of the total CLC Pine Rockland, most corresponded to 2 FLUCCS classes: Pine Flatwoods (44%) and Wet Pinelands/Hydric Pine (33%). CLC Pine Rockland primarily overlapped 3 FLVEG classes: Pinelands (40%), Shrub Swamp (20%) and Sawgrass Marsh (19%).

Rockland hammock is also restricted to south Florida and the Keys and mostly corresponded to FLUCCS Upland Hardwood Forest (44%) and, to a lesser degree, Mangrove Swamp (14%) and Mixed Wetland Hardwoods (14%). The Tropical Hardwood Hammock class of FLVEG is synonymous with rockland hammock. Of the Rockland Hammock mapped by CLC, 41% overlapped FLVEG Tropical Hardwood Hammock; 52% of the areas mapped as FLVEG Tropical Hardwood Hammock overlapped with CLC Rockland Hammock. See Appendix N for pine rockland and rockland hammock comparisons.

Mesic Flatwoods. –We did not comprehensively revise mesic flatwoods so many areas in the final statewide land cover are represented by FLUCCS Pine Flatwoods that was not reviewed (Table 3). A comparison of the areas classed as CLC Mesic Flatwoods with FLUCCS, however,

showed that FLUCCS Pine Flatwoods contributed the most overlap in only 2 districts: SWF (46%) and SF (37%). CLC Mesic Flatwoods also overlapped consistently with Unimproved Pastures, Palmetto Prairies and Shrub and Brushland in SJR, SF and SWF, respectively. The FLVEG Pinelands class contains both natural and planted pinelands and so does not directly translate to mesic flatwoods. Of the Mesic Flatwoods mapped by CLC, 38% overlapped with FLVEG Pinelands and 32% with Dry Prairie. See Appendix O for mesic flatwoods comparisons.

Upland Pine.—Although we did not review any areas explicitly for upland pine we classified Upland Pine within its range (FNAI 2010a) as we reviewed areas for sandhill, scrub and scrubby flatwoods. Local source data, especially the historic natural community map of Blackwater River State Forest, also contributed significantly to the areas mapped as CLC Upland Pine. Two FLUCCS classes, Upland Coniferous Forests and Hardwood Coniferous-mixed, contributed the most overlap to CLC Upland Pine in both NWF and SR. More than two-thirds of CLC Upland Pine was mapped as Pinelands in FLVEG. See Appendix P for upland pine comparisons.

Upland Glade.—All remaining upland glades in Florida were mapped and field verified by FNAI ecologists working with local experts as part of a targeted survey for this community. Upland Glade is difficult to detect through aerial photography or other remotely sensed data and has not been previously included in any statewide land cover.

DISCUSSION

The Cooperative Land Cover Map improves on previous statewide land cover by integrating local ecologically-based land cover and data for focal natural communities that were revised through review of aerial photography. Field inspection and local knowledge often inform local and regional land cover which results in increased accuracy of classification. We were able to

tap this resource and pull together many datasets that previously only were used by local land managers.

Land Cover Classification

One of the limitations of previous statewide land cover datasets is the use of disparate classification systems. Previous attempts to hybridize FLVEG and FLUCCS encountered problems with translation between classes. In addition, although many projects require use of the FNAI natural community classification, it is not well-represented by statewide systems. The new Florida Land Cover Classification System, a State Wildlife Grant project (Kawula 2009), integrates existing classification systems, including FNAI and FLUCCS, into a hierarchical and extensible scheme. The flexibility of this system makes it possible to incorporate many types of local data into a statewide map.

We modified the classification to accommodate classes in local land cover that did not have an analog in the FLCS. One common issue with local datasets was the classification of any water body, be it pond, stream or estuary, as ‘open water’. Many open water systems fall outside the scope of traditional terrestrial land management or conservation planning, thus land cover developed for these purposes understandably may fail to distinguish between water bodies. We added a high level open water class to the FLCS for this project although we acknowledge that it does not fit well within the existing scheme. We plan to work with FWC to better integrate this class in the FLCS, or alternatively, to integrate data that distinguish water body types into the land cover map.

Altered communities, or so-called cultural classes, were a challenge both to crosswalk and to assign during the aerial photo review. The FLCS cultural classes largely derive from FLUCCS and a classification scheme from the New York Natural Heritage Program (Kawula

2009) and provide a detailed, logical hierarchy of urban and agricultural classes. However, we found that the FLUCCS Herbaceous (FLUCCS code 3100) and Shrub and Brushland (FLUCCS code 3200) classes contained a mix of disturbed and natural lands. In our review of Shrub and Brushland in the SWFWMD, we found that 30% of lands were disturbed and 70% qualified as an FNAI natural community (Appendix J). We designed a FLUCCS-to-FLCS crosswalk, based on our experience and analysis, that differs in several ways from the original FLCS recommended crosswalk (Appendix I).

During aerial photo review we encountered many rural lands that no longer functioned as natural communities yet had some potential to support wildlife or be restored. These lands function ecologically similar to low density residential areas, pine plantations, or other ‘semi-natural’ lands. Many conservation planning analyses group land cover classes into levels of land use intensity or degrees of natural quality (FNAI 2010b; Hctor et al. 2008). We wanted to classify these semi-natural rural lands in an ecologically meaningful way and found the existing classification to be inadequate. We worked with FWC to add a high level rural class with subclasses for rural open land, rural open forested and rural open pine to the FLCS. These classes are relatively easy to define and interpret from aerial photography and could help resolve some of the ambiguity in the Herbaceous and Shrub and Brushland classes of FLUCCS.

Focal Communities

The comparison of focal communities between CLC data, FLVEG and FLUCCS shows how classification differences result in disparate maps. We assumed the FLUCCS Xeric Oak category to be a surrogate for scrub, but FLUCCS Xeric Oak is more frequently applied to polygons we identified as CLC Sandhill. Similarly, dry prairie, although crosswalked with FLUCCS Herbaceous in the FLCS, was consistently mapped as FLUCCS Unimproved Pasture

(FLUCCS code 2120) and Shrub and Brushland. FLVEG was intended to represent ecologically-based vegetation communities (Stys et al. 2004), and more closely matched the CLC interpretation of both Scrub and Dry Prairie.

Some natural communities in the FNAI classification such as pine rockland and upland glade, are distinct because of their limestone substrate, a feature that is often not detectable via aerial photos or satellite imagery. These communities are not classified by either FLUCCS or FLVEG although they are important ecologically: pine rockland and upland glade are globally critically imperiled (FNAI 2010c) and pine rockland supports many federally endangered plant species. The use of local data sources and use of the FLCS which incorporates the FNAI classification enable us to include these communities in the Cooperative Land Cover Map.

Incongruency among land covers is also the result of interpretation differences. The FLUCCS Longleaf Pine – Xeric Oak class frequently agrees with Sandhill as mapped by CLC (Appendix J); however, most CLC Sandhill is mapped as other classes by FLUCCS. Sandhill signatures vary depending on factors such as extent of hardwood encroachment, density of pines, and ground disturbance. Lack of fire can increase the hardwood component of sandhill which may result in a Xeric Oak or Hardwood Coniferous-mixed signature in the FLUCCS system. These areas, however, may still be viable sandhill in the FNAI system if they appear to retain intact ground cover (FNAI 2010a). Scrub, as defined by FNAI and mapped by CLC, has a wide array of aerial photo signatures which was reflected in the large range of FLUCCS classes with which it overlapped. During aerial photo review, FNAI ecologists relied on cues such as the texture of shrub vegetation, presence of open sand (often more apparent on older photos), and landscape context to classify scrub. Overgrown scrub that likely no longer supported characteristic scrub species, was mapped as another community such as xeric hammock or pine

plantation by CLC. Scrubby flatwoods can appear similar to scrub but with a larger pine (other than sand pine) and saw palmetto component. It can also be difficult to distinguish from mesic flatwoods and sandhill on aerial photos. For the CLC aerial photo review we mapped the most obvious scrubby signatures but acknowledge that the representation of scrubby flatwoods statewide is incomplete. For habitat analyses, we recommend using Scrub and Scrubby Flatwoods together. These examples illustrate the need to understand the methods and limitations of any land cover data.

The acreage for revised CLC communities differs considerably from that reported in the Florida's Comprehensive Wildlife Conservation Strategy (FWC 2005; Table 4), especially for pine rockland and dry prairie. The largest remaining patches of pine rockland include 12,000 acres in Long Pine Key in Everglades National Park and 1,600 acres on Big Pine Key. The remainder exists as small isolated patches largely surrounded by development, which are a high priority for conservation. Dry prairie as defined by FNAI (FNAI 2010a) is confined to south central Florida where its historic extent has been mapped by Bridges (2006). FLVEG Dry Prairie, from which the Strategy habitat acreages are derived, extends well beyond this range which partly accounts for the large acreage discrepancy.

Table 4. Acres of Priority Habitats identified by Florida's Comprehensive Wildlife Conservation Strategy that were mapped for the Cooperative Land Cover Map (CLC) and reported in the Strategy.

Priority habitat	Acres mapped by CLC	Acres reported in Strategy
Pine rockland	16,635	2,959
Scrub	429,669	337,458
Sandhill	812,214	753,547
Dry prairie	154,034	1,215,099

Statewide land cover has inadequately represented many imperiled natural communities including the focal communities addressed in this project. Review of aerial photography for scrub, scrubby flatwoods, sandhill, and dry prairie was an intensive but necessary effort to correct problems in existing land cover. These revisions combined with local sources have resulted in significant improvement to the statewide maps of these communities. The focal community maps will directly benefit many conservation efforts. The Florida Forever program targets under-represented ecosystems and has identified pine rockland, rockland hammock, scrub, dry prairie and sandhill for conservation land acquisition (FNAI 2010b). These data will facilitate monitoring and management of rare species; we distributed early draft maps to FWC biologists to help identify survey areas for Florida scrub-jay (*Aphelocoma coerulescens*) and American kestrel (*Falco sparverius*). These data will also facilitate species habitat mapping which is the foundation for Rare Species Habitat Conservation Priorities (FNAI 2010b) and Strategic Habitat Conservation Priorities (Endries et al. 2009), both of which inform the Florida Forever Conservation Needs Assessment (Knight et al. 2000) and the Critical Lands and Waters Identification Project (Hector et al. 2008), the spatial database of the FWC Cooperative Conservation Blueprint.

The Cooperative Land Cover Map fills a priority data gap of the Strategy for improved land cover mapping. In addition, the project resulted in significant improvements to mapping of priority habitats identified in the Strategy. The Cooperative Land Cover Map is truly a collaborative project and has achieved the objective of having broad support with the ability to be used by a diverse group of planners and managers. The partnerships formed with data contributors and reviewers help ensure quality, understanding and best use of the data.

Limitations

One of the primary limitations of any land cover is the inability to keep up with continual changes on the ground, especially the rapid conversion of natural or agricultural land to urban uses. Even with frequent updates land cover will always lag behind the pace of land conversion. The Cooperative Land Cover Map relies on numerous sources of information, created at different times and for different purposes. Many sources identify habitats within managed conservation lands where land conversion is unlikely, thus we assume that land cover remains valid over time. The management goal on many of these lands, however, is to restore disturbed areas such as pasture, pine plantation and successional hardwood forest to their pre-disturbance state. Recent restoration efforts by land managers may not be fully reflected in the map.

Although the classification scheme integrates 2 well-defined systems, FLUCCS (DOT 1999) and FNAI (2010a), interpretation of classes may differ among developers of the data. For example, Florida Park Service biologists sometimes assign coastal strand to areas that FNAI classifies as scrub; Kennedy Space Center land cover assigns scrub to some areas FNAI classifies as maritime hammock; Archbold Biological Station assigns scrubby flatwoods to communities that FNAI calls scrub. Some sources classify historical natural communities rather than current, including the FNAI Historic Natural Community Mapping Projects and some sites within the Florida Park Service Natural Community Maps. We attempted to address major land use changes but some inaccuracies may exist because of changes to natural processes such as fire and hydrologic regimes. Differences also exist in the FLUCCS photointerpretation keys between water management districts, an issue raised by the districts at a workshop to provide feedback on the FLCs. Interpretation of aerial photography is always subjective to some degree and acceptable as long as conservation and management are not compromised.

The FNAI natural community classification was revised in 2010. We were able to update most FNAI-derived sources from the old system to the new, but did not attempt to update all local sources that used the older FNAI system. We handled some discrepancies by crosswalking data to higher level categories in the FLCS. As source providers migrate to the new classification we plan to incorporate revised data into the CLC.

Because the CLC integrates many different data sources, the resolution and classification may differ across boundaries, especially between adjacent conservation lands and also between conservation lands and private lands. The use of multiple data sources, and thus classification systems, also resulted in a large number of classes in the final map. We created a generalized 'legend' classification of 44 classes for display purposes that may also be useful for some habitat and conservation analyses (Fig. 2; Appendix A).

An accuracy assessment has not been conducted for this work. Many areas covered by local source data have been ground-truthed and are assumed accurate. The FWC will continue this project during 2010 - 2013 by using remotely-sensed imagery to improve areas of low accuracy and precision. The land cover map will be subjected to an accuracy assessment as part of that project.

Although aerial photography review resulted in significant improvements to maps of focal communities, it is unlikely to be repeated in the near future. Much of the review covered areas outside of existing conservation lands that are under high threat of development. Our hope is that the map will facilitate conservation of these imperiled communities before they are lost.

RECOMMENDATIONS

1. Facilitate use of the Cooperative Land Cover Map by providing access via digital download and Google Earth compatible files.
2. Promote and participate in revisions to conservation analyses and products that are derived from land cover including many datasets of the Florida Forever Conservation Needs Assessment (Knight et al. 2000) and Critical Lands and Waters Identification Project (Hector et al. 2008).
3. Continue to update the map as new information becomes available. New and updated data for conservation lands from the FNAI, FPS and SJRWMD are expected in the next fiscal year. In addition, FLUCCS updates are expected over the next two years from the NFWFMD, SJRWMD and SWFWMD.
4. Provide the results of this project to water management districts to increase consistency of interpretation for focal communities and to promote the use of the Florida Land Cover Classification System.
5. Develop future research to identify former sandhill and scrub that could be restored.

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APPENDIX A. Florida Land Cover Classification System (FLCS) as used in the Cooperative Land Cover Map (CLC).

FLCS Code	FLCS Name	Modification for CLC ^a	Acres in CLC	LegendNum ^b	Legend Name ^b
1000	Terrestrial		-	-	
1100	Hardwood Forested Uplands		-	-	
1110	Upland Hardwood Forest		237,286	1100	Hardwood Forested Uplands
1111	Dry Upland Hardwood Forest		758	1100	Hardwood Forested Uplands
1112	Mixed Hardwoods		5	1100	Hardwood Forested Uplands
1120	Mesic Hammock		61,741	1100	Hardwood Forested Uplands
1121	Evergreen Levee Hammock		-	-	
1122	Prairie Mesic Hammock		6,723	1100	Hardwood Forested Uplands
1123	Live Oak		11,282	1100	Hardwood Forested Uplands
1124	Pine - Mesic Oak		472	1100	Hardwood Forested Uplands
1125	Cabbage Palm		5,421	1100	Hardwood Forested Uplands
1130	Rockland Hammock		19,185	1130	Rockland Hammock
1131	Thorn Scrub		26	1130	Rockland Hammock
1140	Slope Forest		5,431	1100	Hardwood Forested Uplands
1150	Xeric Hammock		27,465	1100	Hardwood Forested Uplands
1200	High Pine and Scrub		-	-	
1210	Scrub		428,633	1210	Scrub
1211	Oak Scrub		298	1210	Scrub
1212	Rosemary Scrub		-	-	
1213	Sand Pine Scrub		463	1210	Scrub
1214	Coastal Scrub		157	1210	Scrub
1220	Upland Mixed Woodland		1,700	1200	Other High Pine and Scrub
1230	Upland Coniferous		216,527	1200	Other High Pine and Scrub
1231	Upland Pine		166,448	1231	Upland Pine
1240	Sandhill		811,927	1240	Sandhill
1300	Pine Flatwoods and Dry Prairie		-	-	
1310	Dry Flatwoods		-	-	
1311	Mesic Flatwoods		1,573,979	1311	Mesic Flatwoods
1312	Scrubby Flatwoods		82,371	1312	Scrubby Flatwoods

APPENDIX A. Continued.

FLCS Code	FLCS Name	Modification for CLC ^a	Acres in CLC	LegendNum ^b	Legend Name ^b
1320	Pine Rockland		16,637	1320	Pine Rockland
1330	Dry Prairie		154,060	1330	Dry Prairie
1340	Palmetto Prairie		-	-	
1400	Mixed Hardwood-Coniferous		1,407,633	1400	Mixed Hardwood-Coniferous
1410	Successional Hardwood Forest		57,555	1400	Mixed Hardwood-Coniferous
1500	Shrub and Brushland		324,248	1500	Shrub and Brushland
1510	Other Shrubs & Brush		-	-	
1600	Coastal Uplands		-	-	
1610	Beach Dune		7,502	1600	Coastal Uplands
1620	Coastal Berm		612	1600	
1630	Coastal Grassland		4,865	1600	
1640	Coastal Strand		6,599	1600	
1650	Maritime Hammock		21,997	1600	
1660	Shell Mound		391	1600	
1670	Sand Beach (Dry)		18,498	1600	
1700	Barren and Outcrop Communities		-	-	
1710	Sinkhole		118	1700	Barren and Outcrop Communities
1720	Upland Glade		40	1700	Barren and Outcrop Communities
1730	Limestone Outcrop		-	-	
1740	Keys Cactus Barren		13	1700	Barren and Outcrop Communities
1750	Bare Soil		-	-	
1760	Exposed Rock		-	-	
1761	Exposed Rock w/ Marsh Grasses		-	-	
1800	Cultural - Terrestrial		-	-	
1810	Mowed Grass		-	-	
1811	Vegetative Berm		274	1811	Vegetative Berm
1812	Highway Rights of Way		-	-	
1820	Urban		-	-	
1821	Low Intensity Urban	changed name	30,396	1821	Low Intensity Urban

APPENDIX A. Continued.

FLCS Code	FLCS Name	Modification for CLC ^a	Acres in CLC	LegendNum ^b	Legend Name ^b
18211	Urban Open Land		153,798	1821	Low Intensity Urban
182111	Urban Open Forested		3,488	1821	Low Intensity Urban
182112	Urban Open Pine		1,926	1821	Low Intensity Urban
18212	Low Structure Density	changed name	992,479	1821	Low Intensity Urban
18213	Grass		-	-	
182131	Parks		21,917	1821	Low Intensity Urban
182132	Golf courses		158,744	1821	Low Intensity Urban
182133	Ballfields		-	-	
182134	Zoos		-	-	
182135	Cemeteries		7,700	1821	Low Intensity Urban
182136	Community rec. facilities		11,178	1821	Low Intensity Urban
18214	Trees		-	-	
1822	High Intensity Urban	changed name	60,379	1822	High Intensity Urban
18221	Residential, Med. Density		1,259,045	1822	High Intensity Urban
18222	Residential, High Density		682,444	1822	High Intensity Urban
18223	Commercial & Services		367,456	1822	High Intensity Urban
18224	Industrial		102,367	1822	High Intensity Urban
18225	Institutional		166,032	1822	High Intensity Urban
1830	Rural		-	-	
1831	Rural Open		1,064,931	1830	Rural Lands
18311	Rural Open Forested		12,820	1830	Rural Lands
183111	Oak - Cabbage Palm Forests		7,599	1830	Rural Lands
18312	Rural Open Pine		6,842	1830	Rural Lands
1832	Agriculture		13,596	1832	Agriculture
18321	Cropland/Pasture		1,026,929	1832	Agriculture
183211	Row Crops		274,409	1832	Agriculture
183212	Field Crops		751,873	1832	Agriculture
1832121	Sugarcane		637,877	1832	Agriculture
183213	Improved Pasture		2,062,058	183213	Improved Pasture

APPENDIX A. Continued.

FLCS Code	FLCS Name	Modification for CLC ^a	Acres in CLC	LegendNum ^b	Legend Name ^b
183214		Unimproved/Woodland Pasture	811,747	1832	Unimproved/Woodland Pasture
183215		Other Open Lands - Rural	-	-	
1832151		Fallow Cropland	19,725	1832	Agriculture
18322		Orchards/Groves	326,863	1832	Agriculture
183221		Citrus	599,267	1832	Agriculture
183222		Fruit Orchards	11,800	1832	Agriculture
183223		Pecan	-	-	
183224		Fallow Orchards	2,427	1832	Agriculture
18323		Tree Plantations	343	18323	Tree Plantations
183231		Hardwood Plantations	508	18323	Tree Plantations
183232		Coniferous Plantations	4,755,019	18323	Tree Plantations
18324		Vineyard & Nurseries	31,441	1832	Agriculture
183241		Tree Nurseries	27,384	1832	Agriculture
183242		Sod Farms	33,280	1832	Agriculture
183243		Ornamentals	45,856	1832	Agriculture
183244		Vineyards	-	-	
183245		Floriculture	34	1832	Agriculture
18325		Other Agriculture	-	-	
183251		Feeding Operations	15,511	1832	Agriculture
183252		Specialty Farms	128,587	1832	Agriculture
1840		Transportation	140,643	1840	Transportation
1841		Roads	147,998	1840	Transportation
1842		Rails	13,486	1840	Transportation
1850		Communication	4,236	1850	Communication
1860		Utilities	114,607	1860	Utilities
1870		Extractive	326,172	1870	Extractive
1871		Strip Mines	6,402	1870	Extractive
1872		Sand & Gravel Pits	13,332	1870	Extractive
1873		Rock Quarries	13,150	1870	Extractive

APPENDIX A. Continued.

FLCS Code	FLCS Name	Modification for CLC ^a	Acres in CLC	LegendNum ^b	Legend Name ^b
1874	Oil & Gas Fields		228	1870	Extractive
1875	Reclaimed Lands		19,748	1870	Extractive
1876	Abandoned Mining Lands		-	-	
1877	Spoil Area	added class	18,746	1890	Spoil Area
1880	Bare Soil/Clear Cut		12,826	1880	Bare Soil/Clear Cut
2000	Palustrine		-	-	
2100	Freshwater Non-Forested Wetlands		70	2100	Freshwater Non-Forested Wetlands
2110	Prairies and Bogs		-	-	
2111	Wet Prairie	changed name	557,995	2110	Prairies and Bogs
21111	Wiregrass Savanna		-	-	
21112	Cutthroat Seep		4,679	2110	Prairies and Bogs
21113	Calcareous Wet Prairie		-	-	
2112	Mixed Scrub-Shrub Wetland		856,947	2110	Prairies and Bogs
21121	Shrub Bog		231,784	2110	Prairies and Bogs
2113	Marl Prairie		170,931	2110	Prairies and Bogs
2114	Seepage Slope	added class	989	2110	Prairies and Bogs
2120	Freshwater Marshes		1,022,175	2120	Freshwater Marshes
2121	Isolated Freshwater Marsh	added class	5,679	2120	Freshwater Marshes
21211	Depression Marsh	adjusted code	68,467	2120	Freshwater Marshes
21212	Basin Marsh	adjusted code	98,408	2120	Freshwater Marshes
2122	Coastal Interdunal Swale		954	2120	Freshwater Marshes
2123	Floodplain Marsh		42,761	2120	Freshwater Marshes
21231	Freshwater Tidal Marsh		4,275	2120	Freshwater Marshes
2124	Slough Marsh		19,870	2120	Freshwater Marshes
2125	Glades Marsh		1,246,589	2120	Freshwater Marshes
2130	Marshes (Continued)		-	-	
2131	Sawgrass		200,052	2120	Freshwater Marshes
2132	Cattail		-	-	
2133	Spike Rush		-	-	

APPENDIX A. Continued.

FLCS Code	FLCS Name	Modification for CLC ^a	Acres in CLC	LegendNum ^b	Legend Name ^b
2134	Maidencane		-	-	
2135	Dog Fennel & Low Marsh Grasses		-	-	
2136	Arrowroot		-	-	
2137	Giant Cutgrass		-	-	
2138	Buttonbush		-	-	
2139	Other spp.		-	-	
2140	Floating/Emergent Aquatic Vegetation		111,161	2100	Freshwater Non-Forested Wetlands
2141	Slough		7,107	2100	Freshwater Non-Forested Wetlands
21411	Pond Apple Slough		-	-	
2142	Water Lettuce		-	-	
2143	Spatterdock		-	-	
2144	Water Hyacinth		-	-	
2145	Duck Weed		-	-	
2146	Water Lily		-	-	
2147	Other spp.		-	-	
2150	Submergent Aquatic Vegetation		-	-	
2200	Freshwater Forested Wetlands		35,833	2200	Freshwater Forested Wetlands
2210	Cypress/Tupelo(incl Cy/Tu mixed)		82,177	2210	Cypress/Tupelo
2211	Cypress		492,511	2210	Cypress/Tupelo
2212	Tupelo		-	-	
2213	Isolated Freshwater Swamp	added class	35,523	2210	Cypress/Tupelo
22131	Dome Swamp	adjusted code	119,968	2210	Cypress/Tupelo
221311	Stringer Swamp	adjusted code	11,106	2210	Cypress/Tupelo
221312	Gum Pond	adjusted code	148	2210	Cypress/Tupelo
22132	Basin Swamp	adjusted code	205,417	2210	Cypress/Tupelo
2214	Strand Swamp		173,997	2210	Cypress/Tupelo
2215	Floodplain Swamp		154,478	2210	Cypress/Tupelo
22151	Freshwater Tidal Swamp		28	2210	Cypress/Tupelo
2220	Other Coniferous Wetlands		14,774	2220	Other Coniferous Wetlands

APPENDIX A. Continued.

FLCS Code	FLCS Name	Modification for CLC ^a	Acres in CLC	LegendNum ^b	Legend Name ^b
2221	Wet Flatwoods		163,111	2220	Other Coniferous Wetlands
22211	Hydric Pine Flatwoods		577,482	2220	Other Coniferous Wetlands
222111	Cutthroat Grass Flatwoods		6,381	2220	Other Coniferous Wetlands
222112	Cabbage Palm Flatwoods		-	-	
22212	Hydric Pine Savanna		193	2220	Other Coniferous Wetlands
2222	Pond Pine		2,137	2220	Other Coniferous Wetlands
2223	Atlantic White Cedar		9	2220	Other Coniferous Wetlands
2224	Slash Pine Swamp Forest		-	-	
2230	Other Hardwood Wetlands		3,129	2230	Other Hardwood Wetlands
2231	Baygall		34,235	2230	Other Hardwood Wetlands
22311	Bay Swamp		60,618	2230	Other Hardwood Wetlands
22312	South Florida Bayhead		32,794	2230	Other Hardwood Wetlands
2232	Hydric Hammock		222,927	2230	Other Hardwood Wetlands
22321	Coastal Hydric Hammock		811	2230	Other Hardwood Wetlands
22322	Prairie Hydric Hammock		199	2230	Other Hardwood Wetlands
22323	Cabbage Palm Hammock		16,626	2230	Other Hardwood Wetlands
2233	Mixed Wetland Hardwoods		1,419,302	2230	Other Hardwood Wetlands
22331	Bottomland Forest		28,473	2230	Other Hardwood Wetlands
22332	Alluvial Forest		1,240	2230	Other Hardwood Wetlands
2234	Titi Swamp		2,231	2230	Other Hardwood Wetlands
2240	Other Wetland Forested Mixed		1,355,512	2240	Other Wetland Forested Mixed
2241	Cypress/Hardwood Swamps		-	-	
2242	Cypress/Pine/Cabbage Palm		29,101	2240	Other Wetland Forested Mixed
2300	Non-vegetated Wetland		12,153	2300	Non-vegetated Wetland
2400	Cultural - Palustrine		-	-	
2410	Impounded Marsh		35	2400	Cultural - Palustrine
2420	Impounded Swamp		9	2400	Cultural - Palustrine
2430	Grazed Wetlands		-	-	
2440	Clearcut Wetland		-	-	

APPENDIX A. Continued.

FLCS Code	FLCS Name	Modification for CLC ^a	Acres in CLC	LegendNum ^b	Legend Name ^b
2450	Wet Coniferous Plantations	added class	355,977	2450	Wet Coniferous Plantations
3000	Lacustrine		-	-	
3100	Natural Lakes & Ponds		956,495	8000	Open Water
3110	Limnetic		-	-	
3111	Clastic Upland Lake		1,511	8000	Open Water
3112	Coastal Dune Lake		470	8000	Open Water
3113	Flatwoods/Prairie/Marsh Lake		32,099	8000	Open Water
3114	River Floodplain Lake/Swamp Lake		4,504	8000	Open Water
3115	Sinkhole Lake		115	8000	Open Water
3116	Coastal Rockland Lake		72	8000	Open Water
3117	Sandhill Lake		2,118	8000	Open Water
3118	Major Springs	added class	291	8000	Open Water
3120	Littoral		-	-	
3200	Artificial Lakes & Ponds		19,742	8000	Open Water
3210	Artificial/Farm Pond		873	8000	Open Water
3211	Aquacultural Ponds		4,117	8000	Open Water
3220	Artificial Impoundment/Reservoir		249,353	8000	Open Water
3230	Quarry Pond		30,737	8000	Open Water
3240	Sewage Treatment Pond		7,621	8000	Open Water
3250	Stormwater Treatment Areas		938	8000	Open Water
3260	Industrial Cooling Pond		13,792	8000	Open Water
4000	Riverine		-	-	
4100	Natural Rivers & Streams		311,433	8000	Open Water
4110	Alluvial Stream		2,387	8000	Open Water
4120	Blackwater Stream		10,676	8000	Open Water
4130	Spring Run Stream		849	8000	Open Water
4140	Seepage Stream		277	8000	Open Water
4150	Calcareous Stream		-	-	
4160	Tidally-influenced Stream		-	-	

APPENDIX A. Continued.

FLCS Code	FLCS Name	Modification for CLC ^a	Acres in CLC	LegendNum ^b	Legend Name ^b
4170	Riverine Sandbar	added class	664	2300	Non-vegetated Wetland
4200	Canal/Ditch	changed name	14,983	8000	Open Water
4210	Canal		62,490	8000	Open Water
4220	Ditch/Artificial Intermittent Stream		-	-	
4230	Industrial Effluent Stream		-	-	
5000	Estuarine		1,750,192	8000	Open Water
5100	Subtidal		-	-	
5200	Intertidal		7	5200	Estuarine Intertidal
5210	Exposed Limestone		-	-	
5211	Vegetated		-	-	
52111	Keys Tidal Rock Barren		9,261	52111	Keys Tidal Rock Barren
5212	Non-vegetated		-	-	
5220	Tidal Flat		28,795	5200	Estuarine Intertidal
5221	Mud		-	-	
5222	Sand		-	-	
5230	Oyster Bar		5200	5200	Estuarine Intertidal
5240	Saltwater Marsh		377,945	5240	Saltwater Marsh
5241	Saltwater Marsh Barren		-	-	
5242	Cordgrass		-	-	
5243	Needlerush		-	-	
5250	Mangrove Swamp		601,740	5250	Mangrove Swamp
5251	Buttonwood Forest	added class	6	5250	Mangrove Swamp
5300	Cultural		-	-	
5310	Estuarine Ditch/Channel		-	-	
5320	Estuarine Artificial Impoundment		-	-	
5330	Aquaculture		-	-	
6000	Marine		855,606	8000	Open Water
6100	Surf Zone		-	-	
7000	Exotic Plants		18,635	7000	Exotic Plants

APPENDIX A. Continued.

FLCS Code	FLCS Name	Modification for CLC ^a	Acres in CLC	LegendNum ^b	Legend Name ^b
7100	Australian Pine		4,038	7000	Exotic Plants
7200	Melaleuca		7,258	7000	Exotic Plants
7300	Brazilian Pepper		18,460	7000	Exotic Plants
7400	Exotic Wetland Hardwoods		24,143	7000	Exotic Plants
8000	Open Water	added class	93,027	8000	Open Water
9000	Other	added class	-	-	
9100	Unconsolidated Substrate	added class	31,119	9100	Unconsolidated Substrate

^a Indicates a change from the published version of the Florida Land Cover Classification. See Kawula 2009 for original names and codes .

^b Collapsed version of the full FLCS classification for CLC map display purposes.

APPENDIX B. Crosswalk of local land cover to the Florida Land Cover Classification System (FLCS) for sources that are based on the FNAI natural community classification.

Local Land Cover Class ^a	FLCS Code	FLCS Name
Agriculturally Altered	1832	Agriculture
Agriculture	1832	Agriculture
Alluvial Forest	22332	Alluvial Forest
Alluvial Stream	4110	Alluvial
Aquatic Cave	0	Not Classed
Artificial Pond	3200	Artificial Lakes & Ponds
Australian Pine	7100	Australian Pine
Bare Soil/Clear Cut	1880	Bare Soil/Clear Cut
Basin Lake	3100	Natural Lakes & Ponds
Basin Marsh	21212	Basin Marsh
Basin Swamp	22132	Basin Swamp
Basin/ Depression Marsh	2121	Isolated Freshwater Marsh
Bay Swamp	2231	Baygall
Baygall	2231	Baygall
Baygall - South Florida Bayhead Variant	22312	South Florida Bayhead
Bayhead	2231	Baygall
Beach Dune	1610	Beach Dune
Blackwater Stream	4120	Blackwater
Bog	21121	Shrub Bog
Borrow Pit	3200	Artificial Lakes & Ponds
Bottomland Forest	22331	Bottomland Forest
Brazilian Pepper	7300	Brazilian Pepper
Building	1822	High Intensity Urban
Canal	4200	Canal/Ditch
Canal/Ditch	4200	Canal/Ditch
Citrus	183221	Citrus
Citrus Grove	183221	Citrus
Clastic Upland Lake	3111	Clastic Upland Lake
Cleared Grassy	1831	Rural Open
Coastal Berm	1620	Coastal Berm
Coastal Depression Pond	2410	Impounded Marsh
Coastal Dune Lake	3200	Artificial Lakes & Ponds
Coastal Grasslands	1630	Coastal Grassland
Coastal Interdunal Swale	2123	Coastal Interdunal Swale
Coastal Rock Barren	52111	Keys Tidal Rock Barren
Coastal Rockland Lake	3116	Coastal Rockland Lake
Coastal Salt Barren	5240	Saltwater Marsh
Coastal Strand	1640	Coastal Strand
Cypress	22131	Dome Swamp
Dense Shrub	1311	Mesic Flatwoods
Depression Marsh	21211	Depression Marsh
Developed	1210	Scrub
Disturbed Basin Marsh	21212	Basin Marsh
Disturbed Depression Marsh	21211	Depression Marsh
Disturbed Dome Swamp	22131	Dome swamp
Disturbed Hydric Hammock	2232	Hydric Hammock
Disturbed Maritime Hammock	1650	Maritime Hammock
Disturbed Mesic Flatwoods	1311	Mesic Flatwoods
Disturbed Scrub	1210	Scrub
Disturbed Scrubby Flatwoods	1312	Scrubby Flatwoods
Disturbed Strand Swamp	2215	Strand Swamp

APPENDIX B. Continued.

Local Land Cover Class ^a	FLCS Code	FLCS Name
Disturbed Tidal Marsh	5240	Saltwater Marsh
Disturbed Tidal Swamp	5250	Mangrove Swamp
Disturbed Wet Flatwoods	2221	Wet Flatwoods
Disturbed Wet Prairie	2111	Wet Prairie
Dome Swamp	22131	Dome Swamp
Dome Swamp - Stringer Swamp Variant	221311	Stringer Swamp
Dry Prairie	1330	Dry Prairie
Estuarine	5000	Estuarine
Estuarine Composite Substrate	8000	Open Water
Estuarine Grass Bed	8000	Open Water
Estuarine Sponge Bed	8000	Open Water
Estuarine Tidal Marsh	5240	Saltwater Marsh
Estuarine Tidal Swamp	5250	Mangrove Swamp
Estuarine Unconsolidated Substrate	9100	Unconsolidated Substrate
Excavated Hole	3200	Artificial Lakes & Ponds
Exotic Plants	7000	Exotic Plants
Extractive	1870	Extractive
Fallow Cropland	1832151	Fallow Cropland
Field Crops	183212	Field Crops
Filled	1831	Rural Open
Flatwoods	1311	Mesic Flatwoods
Flatwoods Lake	3113	Flatwoods/Prairie/Marsh Lake
Flatwoods/Prairie Lake	3113	Flatwoods/Prairie/Marsh Lake
Floodplain Forest	2233	Mixed Wetland Hardwoods
Floodplain Marsh	2124	Floodplain Marsh
Floodplain Marsh - Freshwater Tidal Marsh Variant	21241	Freshwater Tidal Marsh
Floodplain Swamp	2216	Floodplain Swamp
Forested Wetlands	2200	Freshwater Forested Wetlands
Freshwater Marsh	21211	Depression Marsh
Freshwater Tidal Swamp	22161	Freshwater Tidal Swamp
Glades Marsh	2126	Glades Marsh
Grassy Flatwoods	1311	Mesic Flatwoods
Hammock Lake	3100	Natural Lakes & Ponds
Human Disturbed - Levee	1811	Vegetative Berm
Human Disturbed - Paved Row	1841	Roads
Human Disturbed - Unpaved Road	1841	Roads
Human Modified	1831	Rural Open
Hydric Flatwoods	2221	Wet Flatwoods
Hydric Hammock	2232	Hydric Hammock
Hydric Hammock - Coastal Hydric Hammock Variant	22321	Coastal Hydric Hammock
Hydric Hammock - Prairie Hydric Hammock Variant	22322	Prairie Hydric Hammock
Improved Pasture	183213	Improved Pasture
Isolated Freshwater Marsh	2121	Isolated Freshwater Marsh
Isolated Freshwater Swamp	2213	Isolated Freshwater Swamp
Isolated Marsh	2121	Isolated Freshwater Marsh
Keys Tidal Rock Barren	52111	Keys Tidal Rock Barren
Lake	3100	Natural Lakes & Ponds
Lakeshore Marsh	2120	Freshwater Marshes
Low Structure Density	18212	Low Structure Density
Mangrove Swamp	5250	Mangrove Swamp
Mangrove Swamp - Buttonwood Forest Variant	5251	Buttonwood Forest

APPENDIX B. Continued.

Local Land Cover Class ^a	FLCS Code	FLCS Name
Marine Algal Bed	8000	Open Water
Marine Composite Substrate	8000	Open Water
Marine Consolidated Substrate	8000	Open Water
Marine Coral Reef	8000	Open Water
Marine Grass Bed	52111	Keys Tidal Rock Barren
Marine Mollusk Reef	8000	Open Water
Marine Tidal Marsh	52111	Keys Tidal Rock Barren
Marine Tidal Swamp	5250	Mangrove Swamp
Marine Unconsolidated Substrate	9100	Unconsolidated Substrate
Marine Worm Reef	8000	Open Water
Maritime Hammock	1650	Maritime Hammock
Marl Prairie	2113	Marl Prairie
Marsh Lake	3113	Flatwoods/Prairie/Marsh Lake
Melaleuca	7200	Melaleuca
Mesic Hammock	1120	Mesic Hammock
Mesic Flatwoods	1311	Mesic Flatwoods
Mesic Hammock	1120	Mesic Hammock
Mesic Hammock - Prairie Mesic Hammock Variant	1122	Prairie Mesic Hammock
Mixed Hardwood Forest	1400	Mixed Hardwood-Coniferous
Mixed Hardwood Swamp	2233	Mixed Wetland Hardwoods
Mixed Hardwood-Coniferous	1400	Mixed Hardwood-Coniferous
Mixed Wetland Hardwoods	2233	Mixed Wetland Hardwoods
Modified		Various
Natural Rivers And Streams	4100	Natural Rivers & Streams
Oak Hammock	1120	Mesic Hammock
Oak Scrub	1210	Scrub
Old World Climbing Fern	7000	Exotic Plants
Open Water	8000	Open Water
Orchards/Groves	18322	Orchards/Groves
Pasture - Improved	183213	Improved Pasture
Pasture - Semi-Improved	183214	Unimproved/Woodland Pasture
Pasture - unimproved	183214	Unimproved/Woodland Pasture
Pine Plantation	183232	Coniferous Plantations
Pine Rockland	1320	Pine Rockland
Pine Rockland (Disturbed Since 04)	1320	Pine Rockland
Point Bar	2310	Riverine Sand Bar
		Prairie Mesic Hammock or Prairie
Prairie Hammock	1122 or 22322	Hydric Hammock
Quarry Pond	3230	Quarry Pond
Rails	1842	Rails
River Floodplain Lake	3114	River Floodplain Lake/Swamp Lake
Road	1841	Roads
Roads	1841	Roads
Rockland Hammock	1130	Rockland Hammock
Rosemary-Oak Scrub	1210	Scrub
Row Crops	183211	Row Crops
Ruderal		Various
Rural Open	1831	Rural Open
Rural Open Forested	18311	Rural Open Forested
Rural Open Land	1831	Rural Open
Rural Open Land - Forested	18311	Rural Open Forested

APPENDIX B. Continued.

Local Land Cover Class ^a	FLCS Code	FLCS Name
Rural Open Land - Pine	18312	Rural Open Pine
Salt Marsh	5240	Saltwater Marsh
Sand And Gravel Pits	1872	Sand & Gravel Pits
Sand Pine Plantation	183232	Coniferous Plantations
Sand Pine Scrub	1213	Sand Pine Scrub
Sandhill	1240	Sandhill
Sandhill Upland Lake	3117	Sandhill Lake
Sandhill -Xh	1240	Sandhill
Scrbby Flatwoods	1312	Scrubby Flatwoods
Scrub	21212	Basin Marsh
Scrub - Disturbed	1210	Scrub
Scrub - Sand Pine Scrub Variant	1213	Sand Pine Scrub
Scrubby Flatwood	1312	Scrubby Flatwoods
Scrubby Flatwoods	1312	Scrubby Flatwoods
Seasonal Ponds	21211	Depression Marsh
Seepage Slope	2114	Seepage Slope
Seepage Stream	4140	Seepage Stream
Shell Mound	1660	Shell Mound
Shrub And Brushland	1500	Shrub and Brushland
Shrub Bog	21121	Shrub Bog
Shrubby Flatwood	1311	Mesic Flatwoods
Shrubby Wetland	21211	Depression Marsh
Sinkhole	1710	Sinkhole
Sinkhole Lake	3115	Sinkhole Lake
Slope Forest	1140	Slope Forest
Slough	2141	Slough
Slough Marsh	2125	Slough Marsh
Specialty Farms	183252	Specialty Farms
Spoil / Fill	1890	Spoil Area
Spoil Area	1890	Spoil Area
Spring-Run Creek	4130	Spring Run
Spring-Run Stream	4130	Spring Run
Strand Swamp	22131	Dome Swamp
Successional Hardwood Forest	1410	Successional Hardwood Forest
Swale	2123	Coastal Interdunal Swale
Swale - LWR	2111	Wet Prairie
Swamp Lake	3114	River Floodplain Lake/Swamp Lake
Terrestrial Cave	0	Not Classed
Tidal Creek	4160	Tidally-influenced
Tidal Marsh	5240	Saltwater Marsh
Tidal Swamp	5250	Mangrove Swamp
Transportation	1840	Transportation
Treeless Flatwoods	1311	Mesic Flatwoods
Unconsolidated Substrate	9100	Unconsolidated Substrate
Unimproved/Woodland Pasture	183214	Unimproved/Woodland Pasture
Unlabeled Communities	3200	Artificial Lakes & Ponds
Upland Glade	1720	Upland Glade
Upland Hardwood Forest	1110	Upland Hardwood Forest
Upland Hardwood Forest - Dry Upland Hardwood Forest Variant	1111	Dry Upland Hardwood Forest
Upland Mixed Forest	2231	Baygall
Upland Mixed Woodland	1220	Upland Mixed Woodland

APPENDIX B. Continued.

Local Land Cover Class ^a	FLCS Code	FLCS Name
Upland Pine	1231	Upland Pine
Upland Pine Forest	1220	Upland Mixed Woodland
Urban	1822	High Intensity Urban
Urban Open Land	18211	Urban Open Land
Utilities	1860	Utilities
Vegetative Berm	1811	Vegetative Berm
Water	8000	Open Water
Wet Flatwoods	2221	Wet Flatwoods
Wet Prairie	2111	Wet Prairie
Wet Prairie - Cutthroat Seep Variant	21112	Cutthroat Seep
Wetland	18311	Rural Open Forested
Xeric Hammock	1150	Xeric Hammock
Xeric Hammock - Sandhill	1150	Xeric Hammock
Yellow Sand Scrub	1210	Scrub

^a List of unique land cover classes summarized from the following sources: Lake Wales Ridge Vegetation Map, Archbold Biological Station Vegetation, Cape Canaveral Air Force Station Natural Community Map, Charlotte County Parks Vegetation Data, Eglin Air Force Base Land Cover Map, Florida Forever Projects Field Assessment Maps, Flint Rock natural Community Map, FNAI Historic Natural Community Mapping, FNAI Natural Community Mapping, Florida Park Service Natural Community Maps, Natural Forest Communities of Miami-Dade County, Nokuse Plantation Land Cover, Palm Beach County Natural Areas Land Cover, St. Johns River Water Management District Natural Community Maps, St. Marks Wildlife Refuge Habitats, The Nature Conservancy Preserves Vegetation Maps.

APPENDIX C. Crosswalk of Avon Park Air Force Range Natural Vegetation Communities to the Florida Land Cover Classification System (FLCS).

Avon Park Land Cover Class	FLCS Code	FLCS Name
Basin Marsh, Sawgrass Dominated	21212	Basin Marsh
Basin Swamp, Seepage Influenced	22132	Basin Swamp
Bombing Range Ridge Seepage Swamp	2231	Baygall
Borrow Pit Ponds	3200	Artificial Lakes & Ponds
Calcareous Fringing Wet Prairie	2111	Wet Prairie
Canals and Ditches	4200	Canal/Ditch
Cutthroat Lawn Complex	21112	Cutthroat Seep
Cutthroat Margin Depression Marsh	21211	Depression Marsh
Cutthroat Mesic Flatwoods/Prairie	1311	Mesic Flatwoods
Cutthroat Seepage Slope Complex	21112	Cutthroat Seep
Cutthroat Wet Flatwoods	222111	Cutthroat Grass Flatwoods
Cutthroat Wet Prairie	21112	Cutthroat Seep
Cypress Depression Swamp	22131	Dome Swamp
Cypress Strand Swamp	22132	Basin Swamp
Depression/Basin Marsh Flowway	2121	Isolated Freshwater Marsh
Depression/Basin Marsh Transition	2121	Isolated Freshwater Marsh
Disturbed, Formerly Dry Prairie	1831	Rural Open
Disturbed, Formerly Wet Prairie	1831	Rural Open
Dry Sandy Hardwood Hammock	1150	Xeric Hammock
Dry-mesic Flatwoods/Savannah	1312	Scrubby Flatwoods
Dry-mesic Prairie	1330	Dry Prairie
Ecotonal Seepage Slope	21112	Cutthroat Seep
Extensive Depression Marsh	21211	Depression Marsh
Floodplain Depression Marsh	21211	Depression Marsh
Floodplain Marsh	2124	Floodplain Marsh
Floodplain Marsh, Cypress Invaded	2124	Floodplain Marsh
Floodplain Marsh, Outer Zones	2124	Floodplain Marsh
Floodplain Marsh, Sawgrass	2124	Floodplain Marsh
Floodplain Marsh, Scattered Cypress	2124	Floodplain Marsh
Floodplain Shrub Swamp	2124	Floodplain Marsh
Floodplain Swamp Forest	2216	Floodplain Swamp
Formerly Cleared Areas Now Vegetated	1831	Rural Open
Fringing Mesic Hardwood Hammock	1120	Mesic Hammock
Gum Swamp	221312	Gum Pond
Hammock/Swamp Transition	2232	Hydric Hammock
Hydric Hardwood Hammock	2232	Hydric Hammock
Interspersed Cleared and Native	1831	Rural Open
Isolated Mesic Hardwood Hammock	1120	Mesic Hammock
Lakeshore Marsh	2120	Freshwater Marshes
Mesic Flatwoods/Savannah	1311	Mesic Flatwoods
Mesic Prairie	1330	Dry Prairie
Mixed Herb Seepage Slope Complex	2111	Wet Prairie
Mixed Scrub	1210	Scrub
Mucky Depression Marsh	21211	Depression Marsh
Mucky Fringing Wet Prairie	2111	Wet Prairie
Natural Lakes	3100	Natural Lakes & Ponds
Oak Scrub	1210	Scrub
Osceola Plains Seepage Swamp	2231	Baygall
Peaty Stream Floodplain Marsh	2124	Floodplain Marsh
Planted Eucalyptus, With Pine	18323	Tree Plantations

APPENDIX C. Continued.

Avon Park Land Cover Class	FLCS Code	FLCS Name
Planted Pine, Cutthroat Site	183232	Coniferous Plantations
Planted Pine, Dense Canopy	183232	Coniferous Plantations
Planted Pine, Dry Prairie Site	183232	Coniferous Plantations
Planted Pine, Moderate Canopy	183232	Coniferous Plantations
Planted Pine, Regenerating	183232	Coniferous Plantations
Planted Pine, Sparse Canopy	183232	Coniferous Plantations
Planted Pine, Wet Flatwoods Site	183232	Coniferous Plantations
Planted Pine, Wet Prairie Site	183232	Coniferous Plantations
Roads	1841	Roads
Roads, Faintly Vegetated	1841	Roads
Sand Pine Scrub	1210	Scrub
Sandhill	1240	Sandhill
Sandy Depression Marsh	21211	Depression Marsh
Sandy Fringing Wet Prairie	2111	Wet Prairie
Scraped Areas	1831	Rural Open
Scrubby Flatwoods, Bombing Range Ridge	1312	Scrubby Flatwoods
Scrubby Flatwoods, Osceola Plain	1312	Scrubby Flatwoods
Slash Pine/Cutthroat Swamp	2221	Wet Flatwoods
Stream Channels	4100	Natural Rivers & Streams
Structures and Development	1822	High Intensity Urban
Tame Pasture, Moderate Canopy	183213	Improved Pasture
Tame Pasture, No Canopy	183213	Improved Pasture
Tame Pasture, Sparse Canopy	183213	Improved Pasture
Tame Pasture, Wetland Site	183213	Improved Pasture
Wet Calcareous Flatwoods/Savannah	2221	Wet Flatwoods
Wet Flatwoods/Savannah	2221	Wet Flatwoods
Wet Prairie	2111	Wet Prairie
Wet Prairie Flowway	2111	Wet Prairie
Wet-mesic (Alfic) Prairie	2111	Wet Prairie
Wet-mesic (Spodic) Prairie	2111	Wet Prairie
Wet-mesic Flatwoods/Savannah	2221	Wet Flatwoods
Wet-mesic Floodplain Swamp	2233	Mixed Wetland Hardwoods
Wet-mesic Hardwood Hammock	1120	Mesic Hammock

APPENDIX D. Crosswalk of 2009 Big Pine Key Land Cover (Florida International University) to the Florida Land Cover Classification System (FLCS).

Big Pine Key Land Cover Class	FLCS Code	FLCS Name
Bare ground/rubble	1831	Rural Open
Black mangrove woodland	5250	Mangrove Swamp
Coastal strand forest	1620	Coastal Berm
Commercial	1822	High Intensity Urban
Disturbed/exotic vegetation	7000	Exotic Plants
Dwarf mangrove mud/rockflat	52111	Keys Tidal Rock Barren
Freshwater marsh/swamp	2126	Glades Marsh
Hardwood hammock	1130	Rockland Hammock
Manmade pond/canal	3200	Artificial Lakes & Ponds
Pine rockland	1320	Pine Rockland
Pond	9100	Unconsolidated Substrate
Red mangrove forest	5250	Mangrove Swamp
Red mangrove island	5250	Mangrove Swamp
Residential	18212	Low Structure Density
Roads	1841	Roads
Sand beach	5250	Mangrove Swamp
Shallow water (tidal)	9100	Unconsolidated Substrate
Spartina marsh	5240	Saltwater Marsh
Supratidal scrub	52111	Keys Tidal Rock Barren
Transitional thorn woodland	1320	Pine Rockland

APPENDIX E. Crosswalk of 2003 Kennedy Space Center Land Cover to the Florida Land Cover Classification System (FLCS).

Kennedy Space Center Land Cover Class	FLCS Code	FLCS Name
Australian pine	7100	Australian Pine
barren land - may be inundated	9100	Unconsolidated Substrate
beach	1610	Beach Dune
cabbage palm	2232	Hydric Hammock
citrus	183221	Citrus
coastal strand	1640	Coastal Strand
ditch	4200	Canal/Ditch
estuary	8000	Open Water
hardwood	1650	Maritime Hammock
hardwood hammock	1650	Maritime Hammock
infrastructure - primary	1822	High Intensity Urban
infrastructure - secondary	1822	High Intensity Urban
mangrove	5250	Mangrove Swamp
marsh - freshwater	2120	Freshwater Marshes
marsh - saltwater	5240	Saltwater Marsh
oak scrub	5250	Mangrove Swamp
ocean	8000	Open Water
palmetto scrub	1311	Mesic Flatwoods
pine flatwoods	1311	Mesic Flatwoods
planted hardwoods	1831	Rural Open
planted oak scrub	1210	Scrub
planted pine	183232	Coniferous Plantations
port water	8000	Open Water
ruderal - herbaceous	1831	Rural Open
ruderal - woody	1831	Rural Open
rural - residential	1831	Rural Open
upland coniferous / hardwood forest	1400	Mixed Hardwood-Coniferous
upland coniferous forest	183232	Coniferous Plantations
upland hardwood forest	1650	Maritime Hammock
water - interior - fresh	8000	Open Water
water - interior - salt	8000	Open Water
wetland coniferous / hardwood forest	2232	Hydric Hammock
wetland hardwood forest	2232	Hydric Hammock
wetland scrub-shrub - freshwater	2112	Mixed Scrub-Shrub Wetland
wetland scrub-shrub - saltwater	2112	Mixed Scrub-Shrub Wetland

APPENDIX F. Crosswalk of Everglades Vegetation 1999 to the Florida Land Cover Classification System (FLCS).

Everglades Vegetation Description	FLCS Code	FLCS Name
Artificial Deer Islands	1890	Spoil Area
Australian Pine (<i>Casuarina</i> spp.)	7000	Exotic Plants
Bay-Hardwood Scrub - Mixed association of bayhead swamp species, buttonwood scrub and hardwood scrub species such as <i>Myrica cerifera</i> , <i>Chrysobalanus icaco</i> , leather fern (<i>Acrostichum danaeifolium</i>), <i>Conocarpus erectus</i> and <i>Cladium jamaicense</i> .	5250	Mangrove Swamp
Bayhead - <i>Magnolia virginiana</i> , <i>Annona glabra</i> , <i>Chrysobalanus icaco</i> , <i>Persea borbonia</i> , <i>Ilex cassine</i> , <i>Metopium toxiferum</i> , among others.	22312	South Florida Bayhead
Beaches	9100	Unconsolidated Substrate
Black (<i>Avicennia germinans</i>)	5250	Mangrove Swamp
Black (<i>Avicennia germinans</i>) Mangrove	5250	Mangrove Swamp
Black rush (<i>Juncus roemerianus</i>)	5240	Saltwater Marsh
Brazilian Pepper (<i>Schinus terebinthifolius</i>)	7000	Exotic Plants
Broadleaf Emergents	2120	Freshwater Marshes
Buttonbush (<i>Cephalanthus occidentalis</i>)	2126	Glades Marsh
Buttonwood (<i>Conocarpus erectus</i>) Forest - <i>Conocarpus erectus</i> with variable mixtures of subtropical hardwoods.	5250	Mangrove Swamp
Buttonwood (<i>Conocarpus erectus</i>) Scrub	5250	Mangrove Swamp
Cabbage Palm (<i>Sabal palmetto</i>) Forest	2232	Hydric Hammock
Cajeput (<i>Melaleuca quinquenervia</i>)	7000	Exotic Plants
Cattail (<i>Typha</i> spp.) Marsh	2126	Glades Marsh
Cocoplum (<i>Chrysobalanus icaco</i>)	22312	South Florida Bayhead
Common reed (<i>Phragmites</i> spp.)	2126	Glades Marsh
Cordgrass (<i>Spartina</i> spp.)	5240	Saltwater Marsh
Cypress (<i>Taxodium distichum</i> and <i>T. ascendens</i>) Savanna	2113	Marl Prairie
Cypress Domes/Heads - <i>Taxodium ascendens</i> , <i>T. distichum</i> ; cypress growing in a depression such that trees in the center are tallest and give the characteristic dome shape. Delineated domes may contain a fringe of short cypress (less than 5 metres).	22131	Dome Swamp
Cypress Mixed Hardwoods - <i>Taxodium ascendens</i> and <i>T. distichum</i> with variable mixtures of subtropical and temperate hardwoods; predominantly in BICY.	2210	Cypress/Tupelo
Cypress Strands - <i>Taxodium ascendens</i> , <i>T. distichum</i> ; cypress domes are treated as a subgroup. Cypress strands (especially in BICY) may contain an understory of species such as <i>Annona glabra</i> , <i>Chrysobalanus icaco</i> , and <i>Fraxinus caroliniana</i> .	2215	Strand Swamp

APPENDIX F. Continued.

Everglades Vegetation Description	FLCS Code	FLCS Name
Cypress with pine - <i>Taxodium distichum</i> and <i>T. ascendens</i> dominant with mixed <i>Pinus elliottii</i> var. <i>densa</i> .	0	Not used - Replaced with FLUCCS
Cypress-Pines - <i>Taxodium distichum</i> with <i>Pinus elliottii</i> and a mixed hardwood scrub understory.	0	Not used - Replaced with FLUCCS
Disturbed Fish Camp Site - Human influence site common in SFWMD that has been disturbed by former fishing/hunting camp. Although buildings are no longer present, an unusual mix of introduced and exotic species persist.	1831	Rural Open
Dwarf cypress - Cypress of stunted growth less than 5 metres in height.	2113	Marl Prairie
Floating/Floating Attached Emergents	2126	Glades Marsh
Graminoid - Saltgrass (<i>Distichlis spicata</i>), smutgrass (<i>Sporobolus</i> spp.) and keys grass (<i>Monanthocloe littoralis</i>).	5240	Saltwater Marsh
Graminoid Prairie/Marsh - Contains grasses, sedges and rushes. The extent of periphyton cover is expressed as a modifier for all appropriate subclasses.	0	Not used - Replaced with FLUCCS
Groundsel bush (<i>Baccharis</i> spp.)	0	Not used - Replaced with FLUCCS
Halophytic Herbaceous Prairie	5240	Saltwater Marsh
Hardwood Scrub - Includes species such as <i>Metopium toxiferum</i> , <i>Persea borbonia</i> , <i>Myrica cerifera</i> , <i>Ilex cassine</i> , <i>Magnolia virginiana</i> , <i>Myrsine floridana</i> , <i>Conocarpus erectus</i> , <i>Chrysobalanus icaco</i> and others.	2200	Freshwater Forested Wetlands
Java Plum (<i>Syzygium cumini</i>)	7000	Exotic Plants
Lather Leaf (<i>Colubrina asiatica</i>)	7000	Exotic Plants
Maidencane (<i>Panicum hemitomon</i>)	2126	Glades Marsh
Maidencane-Spike rush - Mix of shallow open water, <i>Eleocharis</i> spp. and <i>Panicum hemitomon</i> which can include sparse associations of low stature <i>Cladium jamaicense</i> , <i>Typha</i> spp., <i>Sagittaria lancifolia</i> , <i>Pontedaria lanceolata</i> , <i>Nymphaea</i> spp., etc.	2126	Glades Marsh
Major Canals (greater than 30 m wide)	4200	Canal/Ditch
Major Roads (greater than 30 m wide)	1841	Roads
Mangrove Forest	5250	Mangrove Swamp
Mangrove Scrub - The vegetation matrix in which the scrub occurs should be noted, e.g., within <i>Eleocharis</i> marsh.	5250	Mangrove Swamp
Mixed graminoids - Specific mixtures of graminoids, when identified, will be distinguished as subgroups.	0	Not used - Replaced with FLUCCS
Mixed Hardwood Swamp Forest - <i>Quercus virginiana</i> , <i>Q. laurifolia</i> , <i>Acer rubrum</i> , <i>Sabal palmetto</i> , <i>Fraxinus caroliniana</i> .	2200	Freshwater Forested Wetlands
Mixed Hardwoods, Cypress and Pine - Mixture of various subtropical hardwoods with <i>Taxodium distichum</i> with occasional <i>Pinus elliottii</i> var. <i>densa</i> .	2232	Hydric Hammock

APPENDIX F. Continued.

Everglades Vegetation Description	FLCS Code	FLCS Name
Mixed mangrove - Specific mixtures of mangrove species, when identified, will be distinguished as subgroups.	5250	Mangrove Swamp
Mixed scrub - Sparse and high-density subgroups/modifiers can be distinguished.	5250	Mangrove Swamp
Mud	0	Not used - Replaced with FLUCCS
Muhly grass (<i>Muhlenbergia filipes</i>)	2113	Marl Prairie
Non graminoid Emergent Marsh - <i>Pontederia lanceolata</i> , <i>Sagittaria</i> spp., <i>Nymphaea odorata</i> , <i>Typha</i> spp., with <i>Ludwigia repens</i> and <i>Utricularia</i> spp. as possible submergents.	2120	Freshwater Marshes
Oak Sabal Forest - <i>Quercus laurifolia</i> , <i>Q. virginiana</i> , <i>Sabal palmetto</i> .	2232	Hydric Hammock
Open Water	0	Not used - Replaced with FLUCCS
Palm (<i>Sabal palmetto</i>) Savanna	0	Not used - Replaced with FLUCCS
Paurotis Palm (<i>Acoelorrhaphe wrightii</i>) Forest	2232	Hydric Hammock
Pine (<i>Pinus elliottii</i> var. <i>densa</i>) Savanna	0	Not used - Replaced with FLUCCS
Pop Ash (<i>Fraxinus caroliniana</i>)	2215	Strand Swamp
Primrose (<i>Ludwigia</i> spp.)	2126	Glades Marsh
Red (<i>Rhizophora mangle</i>)	5250	Mangrove Swamp
Red (<i>Rhizophora mangle</i>) Mangrove	5250	Mangrove Swamp
Saw Palmetto (<i>Serenoa repens</i>) Scrub	1311	Mesic Flatwoods
Sawgrass (<i>Cladium jamaicense</i>) - The modifier 't' is used to distinguish tall sawgrass, e.g., PGct.	2126	Glades Marsh
Slash pine mixed with palms - <i>Pinus elliottii</i> var. <i>densa</i> , <i>Serenoa repens</i> , <i>Sabal palmetto</i> ; typical of BICY.	0	Not used - Replaced with FLUCCS
Slash pine with cypress - <i>Pinus elliottii</i> var. <i>densa</i> dominant with <i>Taxodium distichum</i> interspersed.	2221	Wet Flatwoods
Slash pine with hardwoods - <i>Pinus elliottii</i> var. <i>densa</i> , <i>Rhus copallina</i> , <i>Guettarda scabra</i> , <i>Bumelia salicifolia</i> , <i>Tetrazygia bicolor</i> , <i>Dodonea viscosa</i> , among others; typical of EVER.	0	Not used - Replaced with FLUCCS
Spike rush (<i>Eleocharis cellulosa</i>)	2126	Glades Marsh
Spoil Areas	1890	Spoil Area
Structures and Cultivated Lawns - Human Influence (HI) includes structures (e.g., buildings, fishing and hunting camps), parking lots and cultivated lawns.	0	Not used - Replaced with FLUCCS
Subtropical Hardwood Forest - <i>Lysiloma latisiliquum</i> , <i>Quercus virginiana</i> , <i>Bursera simaruba</i> , <i>Mastichodendron foetidissimum</i> , <i>Swietenia mahagoni</i> , among others.	0	Not used - Replaced with FLUCCS
Succulent - Very salt tolerant species such as saltwort (<i>Batis maritima</i>), glasswort (<i>Salicornia</i> spp.) and sea purslane (<i>Sesuvium</i> spp.).	5240	Saltwater Marsh
Swamp Forest	2200	Freshwater Forested Wetlands

APPENDIX F. Continued.

Everglades Vegetation Description	FLCS Code	FLCS Name
Tropical Soda Apple (<i>Solanum viarum</i>)	7000	Exotic Plants
Wax myrtle (<i>Myrica cerifera</i>)	2126	Glades Marsh
White (<i>Laguncularia racemosa</i>)	5250	Mangrove Swamp
White (<i>Laguncularia racemosa</i>) Mangrove	5250	Mangrove Swamp
Willow (<i>Salix caroliniana</i>)	2126	Glades Marsh

APPENDIX G. Intersection of FLUCCS and FLVEG with FNAI ground-truthed natural community polygons for 6 communities: Scrub, Sandhill, Dry Prairie, Scrubby Flatwoods, Mesic Flatwoods, and Wet Flatwoods.

SCRUB

FLUCCS Class	FLVEG Class																								Grand Total
	Bare Soil/Clearcut	Bay Swamp	Citrus	Cypress Swamp	Dry Prairie	Freshwater Marsh & Wet Prairie	Grassland	Hardwood Hammocks	Hardwood Swamp	High Impact Urban	Improved Pasture	Low Impact Urban	Mixed Pine-Hardwood	Mixed Wetland Forest	Open Water	Other Agriculture	Pinelands	Row/Field Crops	Sand Pine Scrub	Sandhill	Shrub and Brushland	Shrub Swamp	Unimproved Pasture	Xeric Oak Scrub	
1100: Low Density Residential	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1200: Medium Density Residential	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1820: Golf courses	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
2110: Improved Pastures	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	2%
2120: Unimproved Pastures	0%	0%	0%	0%	6%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	1%	0%	0%	3%	14%
2130: Woodland Pastures	0%	0%	0%	0%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	0%	0%	0%	0%	1%	8%
2300: Feedlots, Nurseries, Farms, etc.	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
3100: Herbaceous Upland Nonforested	3%	0%	0%	0%	0%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	3%	0%	0%	0%	10%
3200: Shrub and Brushland	1%	0%	0%	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%	0%	1%	0%	0%	3%	12%
3210: Palmetto Prairies	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
3300: Mixed Upland Nonforested	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	4%
4110: Pine Flatwoods	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	3%	6%
4120: Longleaf Pine - Xeric Oak	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
4130: Sand Pine	0%	0%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	3%	0%	2%	0%	0%	0%	0%	0%	9%
4200: Upland Hardwood Forests	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
4250: Temperate Hardwoods	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
4340: Upland Mixed Coniferous/Hardwood	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	2%	0%	0%	0%	1%	0%	0%	1%	6%
4370: Exotics	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
4410: Pine Plantation	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	7%	0%	0%	0%	0%	2%	12%
4430: Forest Regeneration	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	1%	0%	0%	5%	12%
6110: Bay swamp or Bayhead	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
6170: Mixed Wetland Hardwoods	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
6180: Cabbage Palm	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%
6200: Wetland Coniferous Forest	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%
6210: Cypress	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
6300: Wetland Forested Mixed	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
6400: Vegetated Non-Forested Wetlands	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
6410: Freshwater Marsh	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
6430: Wet Prairie	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
7400: Disturbed land	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
7420: Borrow and Spoil Areas	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Grand Total	10%	0%	0%	1%	16%	1%	0%	4%	1%	3%	1%	1%	2%	2%	0%	0%	14%	0%	12%	2%	8%	2%	1%	19%	100%

APPENDIX G. Continued.

SANDHILL

FLUCCS TYPE	FLVEG TYPE																						Grand Total
	Bare Soil/Clearcut	Citrus	Cypress Swamp	Dry Prairie	Freshwater Marsh & Wet Prairie	Hardwood Hammocks	Hardwood Swamp	High Impact Urban	Improved Pasture	Low Impact Urban	Mixed Pine-Hardwood	Mixed Wetland Forest	Open Water	Other Agriculture	Pinelands	Row/Field Crops	Sand Pine Scrub	Sandhill	Shrub and Brushland	Shrub Swamp	Unimproved Pasture	Xeric Oak Scrub	
1100: Low Density Residential	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1200: Medium Density Residential	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1400: Commerical and Services	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1800: Recreational	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1850: Parks and Zoos	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%
2100: Cropland and Pastureland	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
2110: Improved Pastures	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
2120: Unimproved Pastures	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
2130: Woodland Pastures	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	1%	0%	0%
2210: Citrus Groves	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
2300: Feedlots, Nurseries, Farms, etc.	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
3100: Herbaceous Upland Nonforested	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
3200: Shrub and Brushland	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
3300: Mixed Upland Nonforested	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
4110: Pine Flatwoods	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	1%	0%	0%	0%	1%	0%	0%	10%	0%	0%	0%	0%	0%
4120: Longleaf Pine - Xeric Oak	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%
4130: Sand Pine	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	1%	0%	0%	14%	0%	0%	0%	0%	0%
4200: Upland Hardwood Forests	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
4210: Xeric Oak	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	0%	0%	0%
4340: Upland Mixed Coniferous/Hardwood	0%	0%	0%	1%	0%	18%	0%	1%	1%	0%	10%	0%	0%	0%	5%	0%	0%	3%	3%	0%	1%	0%	0%
4410: Pine Plantation	0%	0%	0%	0%	0%	2%	0%	0%	0%	0%	1%	0%	0%	0%	1%	0%	0%	0%	1%	0%	0%	0%	0%
4430: Forest Regeneration	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
6170: Mixed Wetland Hardwoods	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
6200: Wetland Coniferous Forest	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
6300: Wetland Forested Mixed	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
6400: Vegetated Non-Forested Wetlands	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
6410: Freshwater Marsh	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
6430: Wet Prairie	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
7400: Disturbed land	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
7410: Rural Land in Transition	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
8100: Transportation	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Grand Total	1%	0%	0%	3%	0%	22%	0%	2%	3%	1%	14%	0%	0%	0%	12%	1%	0%	32%	6%	0%	2%	0%	100%

APPENDIX G. Continued.

DRY PRAIRIE

FLUCCS TYPE	FLVEG TYPE																				Grand Total
	Bare Soil/Clearcut	Bay Swamp	Cypress Swamp	Dry Prairie	Freshwater Marsh & Wet Prairie	Grassland	Hardwood Hammocks	Hardwood Swamp	High Impact Urban	Improved Pasture	Low Impact Urban	Mixed Pine-Hardwood	Mixed Wetland Forest	Open Water	Pinelands	Sand Pine Scrub	Shrub and Brushland	Shrub Swamp	Xeric Oak Scrub		
2110: Improved Pastures	0%	0%	0%	12%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	16%	
2120: Unimproved Pastures	0%	0%	0%	59%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	4%	70%	
2130: Woodland Pastures	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
3200: Shrub and Brushland	0%	0%	0%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%	
3210: Palmetto Prairies	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	
4110: Pine Flatwoods	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
4410: Pine Plantation	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
4430: Forest Regeneration	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	
5100: Lakes, Streams, etc.	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
6170: Mixed Wetland Hardwoods	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
6210: Cypress	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
6410: Freshwater Marsh	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
6430: Wet Prairie	0%	0%	0%	6%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	8%	
Grand Total	0%	0%	1%	80%	7%	0%	0%	0%	0%	1%	0%	0%	0%	0%	2%	0%	0%	1%	7%	100%	

APPENDIX G. Continued.

WET FLATWOODS

FLUCCS TYPE	FLVEG TYPE																									Grand Total
	Bare Soil/Clearcut	Bay Swamp	Citrus	Cypress Swamp	Dry Prairie	Freshwater Marsh & Wet Prairie	Grassland	Hardwood Hammocks	Hardwood Swamp	High Impact Urban	Improved Pasture	Low Impact Urban	Mixed Pine-Hardwood	Mixed Wetland Forest	Open Water	Other Agriculture	Pinelands	Row/Field Crops	Salt Marsh	Sand Pine Scrub	Sandhill	Shrub and Brushland	Shrub Swamp	Unimproved Pasture	Xeric Oak Scrub	
1100: Low Density Residential	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1200: Medium Density Residential	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1300: High Density Residential	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
2110: Improved Pastures	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
2120: Unimproved Pastures	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%
2130: Woodland Pastures	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%
3100: Herbaceous Upland Nonforested	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
3200: Shrub and Brushland	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%
3210: Palmetto Prairies	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
3300: Mixed Upland Nonforested	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%
4110: Pine Flatwoods	0%	0%	0%	1%	1%	0%	0%	0%	1%	0%	0%	0%	1%	2%	0%	0%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%
4120: Longleaf Pine - Xeric Oak	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
4130: Sand Pine	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%
4200: Upland Hardwood Forests	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
4210: Xeric Oak	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
4340: Upland Mixed Coniferous/Hardwood	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%
4410: Pine Plantation	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
4430: Forest Regeneration	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%
5100: Lakes, Streams, etc.	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
6110: Bay swamp or Bayhead	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
6170: Mixed Wetland Hardwoods	0%	0%	0%	0%	1%	1%	0%	0%	1%	0%	0%	0%	0%	3%	0%	0%	4%	0%	0%	0%	0%	1%	1%	0%	0%	0%
6180: Cabbage Palm	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%
6200: Wetland Coniferous Forest	0%	0%	0%	2%	0%	1%	0%	0%	1%	0%	0%	0%	0%	3%	0%	0%	13%	0%	0%	0%	0%	0%	0%	0%	0%	0%
6210: Cypress	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
6300: Wetland Forested Mixed	0%	0%	0%	1%	0%	0%	0%	0%	2%	0%	0%	0%	0%	4%	0%	0%	5%	0%	0%	0%	0%	0%	1%	0%	0%	0%
6400: Vegetated Non-Forested Wetlands	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	2%	0%	0%	0%	0%	0%	1%	0%	0%	0%
6410: Freshwater Marsh	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
6420: Salt Marsh	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
6430: Wet Prairie	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
7400: Disturbed land	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
7420: Borrow and Spoil Areas	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
8100: Transportation	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
8200: Utilities and Communication	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
8320: Electrical Power Transmission Lines	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Grand Total	0%	1%	0%	8%	5%	4%	0%	0%	6%	1%	0%	0%	3%	16%	0%	0%	46%	0%	0%	0%	0%	4%	4%	0%	0%	100%

APPENDIX H. One-foot resolution true-color aerial orthoimagery used to review focal communities for the Cooperative Land Cover Map.

County	Imagery Year	County	Imagery Year
Alachua	2008	Lake	2008
Baker	2008	Lee	2008
Bay	2007	Leon	2007
Bradford	2009	Levy	2009
Brevard	2009	Liberty	2007
Broward	2009	Madison	2007
Calhoun	2007	Manatee	2009
Charlotte	2009	Marion	2009
Citrus	2009	Martin	2009
Clay	2008	Monroe	2009
Collier	2009	Nassau	2008
Columbia	2007	Okaloosa	2007
Miami-Dade	2009	Okeechobee	2006
Desoto	2009	Orange	2008
Dixie	2007	Osceola	2008
Duval	2008	Palm Beach	2006
Escambia	2007	Pasco	2009
Flagler	2008	Pinellas	2009
Franklin	2007	Polk	2009
Gadsden	2007	Putnam	2008
Gilchrist	2007	Santa Rosa	2007
Glades	2009	Sarasota	2009
Gulf	2007	Seminole	2009
Hamilton	2007	St. Johns	2008
Hardee	2009	St. Lucie	2009
Hendry	2008	Sumter	2009
Hernando	2009	Suwannee	2007
Highlands	2008	Taylor	2007
Hillsborough	2009	Union	2009
Holmes	2009	Volusia	2009
Indian River	2009	Wakulla	2007
Jackson	2007	Walton	2007
Jefferson	2007	Washington	2009
Lafayette	2007		

APPENDIX I. Crosswalk of Florida Land Use, Cover and Forms Classification System (FLUCCS) to the Florida Land Cover Classification System (FLCS) for the cooperative land cover map.

FLUCCS		FLUCCS classes used by each Water Management District					
		NWF 2004	SR 2005-2008	SF 2004	SJR 2004	SWF 2008	
LCCODE	FLUCCS LC Description	FLCS CODE	FLCS NAME				
1100	1100: Residential, low density - less than 2 dwelling units/acre	18212	Low Structure Density			x	x
1110	1110 - Low Density: Fixed Single Family Units	18212	Low Structure Density				
1120	1120 - Low Density: Mobile Home Units	18212	Low Structure Density			x	
1130	1130 - Low Density: Mixed Units, Fixed and Mobile Home Units	18212	Low Structure Density			x	
1190	1190 - Low Density: Under construction	18212	Low Structure Density			x	x
1200	1200: Residential, medium density - 2-5 dwelling units/acre	18221	Residential, Med. Density				x
1210	1210 - Medium Density: Fixed Single Family Units	18221	Residential, Med. Density	x	x	x	
1220	1220 - Medium Density: Mobile Home Units	18221	Residential, Med. Density	x	x	x	
1230	1230 - Medium Density: Mixed Units, Fixed and Mobile Home Unit	18221	Residential, Med. Density	x	x	x	
1290	1290 - Medium Density: Under construction	18221	Residential, Med. Density	x	x	x	x
1300	1300: Residential, high density - 6 or more dwelling units/acre	18222	Residential, Med. Density				x
1310	1310 - High Density: Fixed Single Family Units	18222	Residential, Med. Density	x	x	x	
1320	1320 - High Density: Mobile Home Units	18222	Residential, Med. Density	x	x	x	
1330	1330 - Multiple Dwelling Units, Low Rise	18222	Residential, Med. Density	x	x	x	
1340	1340 - Multiple Dwelling Units, High Rise	18222	Residential, Med. Density	x	x	x	
1350	1350 - High Density: Mixed Units, Fixed and Mobile Home Units	18222	Residential, Med. Density	x	x	x	
1390	1390 - High Density: Under construction	18222	Residential, Med. Density	x	x	x	x
1400	1400 - Commercial and Services	18223	Commercial & Services	x	x	x	x
1411	1411 - Shopping Centers	18223	Commercial & Services			x	
1423	1423 - Wholesale Sales & Services - Junk Yards	18223	Commercial & Services	x	x	x	
1454	1454: Campgrounds	18223	Commercial & Services	x	x		
1460	1460 - Oil and Gas Storage - not Industrial or Manufacturing	18223	Commercial & Services	x	x	x	x
1480	1480 - Cemeteries	182135	Cemeteries	x	x	x	x
1490	1490 - Commercial and Services Under Construction	18223	Commercial & Services	x	x	x	x
1500	1500 - Industrial	18224	Industrial			x	
1510	1510: Food processing	18224	Industrial	x	x		x
1520	1520: Timber processing	18224	Industrial	x	x		x
1523	1523: Pulp and paper mills	18224	Industrial	x	x		x
1530	1530: Mineral processing	18224	Industrial	x	x		x
1532	1532: Phosphate	18224	Industrial		x		
1533	1533: Limerock	18224	Industrial	x	x		
1540	1540 - Oil and gas processing	18224	Industrial	x	x	x	x
1550	1550 - Other light industry	18224	Industrial	x	x	x	x
1551	1551: Boat building and Repair	18224	Industrial	x	x		
1552	1552: Electronics	18224	Industrial		x		
1560	1560 - Other heavy industrial	18224	Industrial	x	x	x	x

APPENDIX I. Continued.

FLUCCS		FLUCCS classes used by each Water Management District						
		NWF 2004	SR 2005-2008	SF 2004	SJR 2004	SWF 2008		
LCCODE	FLUCCS LC Description	FLCS CODE	FLCS NAME					
1561	1561: Ship building & repair	18224	Industrial	x			x	
1562	1562: Pre-stressed concrete plants (includes 1564)	18224	Industrial	x	x		x	
1564	1564: Cement Plants	18224	Industrial	x	x			
1590	1590: Industrial under construction	18224	Industrial				x	
1600	1600 - Extractive	1870	Extractive	x	x	x	x	x
1610	1610 - Strip mines	1871	Strip Mines	x		x	x	
1611	1611: Clays	1871	Strip Mines	x			x	
1613	1613: Heavy metals	1871	Strip Mines		x		x	
1620	1620 - Sand and gravel pits	1872	Sand & Gravel Pits	x	x	x	x	
1630	1630 - Rock quarries	1873	Rock Quarries		x	x	x	
1631	1631: Limerock	1873	Rock Quarries		x			
1632	1632: Limerock or dolomite	1873	Rock Quarries	x	x		x	
1633	1633: Phosphates	1873	Rock Quarries	x	x		x	
1640	1640 - Oil and gas fields	1874	Oil & Gas Fields	x		x		
1650	RECLAIMED LAND	1875	Reclaimed Lands					x
1660	1660 - Holding ponds	3230	Quarry Pond	x	x	x	x	
1700	1700 - Institutional	18225	Institutional	x	x	x	x	x
1710	1710 - Educational Facilities	18225	Institutional			x		
1723		18225	Institutional			x		
1730	1730 - Military	18225	Institutional	x	x	x	x	
1750	1750: Governmental - for Kennedy Space Center only	18225	Institutional				x	
1760	1760 - Correctional	18225	Institutional			x		
1800	1800 - Recreational	1821	Low Intensity Urban			x	x	x
1810	1810 - Swimming beach	1670	Sand Beach (Dry)	x	x	x	x	
1820	1820 - Golf course	182132	Golf courses	x	x	x	x	x
1830	1830 - Race tracks	1822	High Intensity Urban	x	x	x	x	
1831	1831: Automobile Tracks	1822	High Intensity Urban	x	x			
1832	1832: Horse Tracks	1822	High Intensity Urban	x	x			
1833	1833: Dog Tracks	1822	High Intensity Urban	x				
1840	1840 - Marinas and fish camps	1822	High Intensity Urban	x	x	x	x	
1850	1850 - Parks and zoos	182131	Parks	x	x	x	x	
1860	1860: Community recreational facilities	182136	Community rec. facilities	x	x		x	
1870	1870 - Stadiums: Not academic	1822	High Intensity Urban			x	x	
1890	1890: Other recreational (stables, go-carts, ...)	1822	High Intensity Urban	x	x		x	
1900	OPEN LAND	18211	Urban Open Land					x
1910	1910: Undeveloped Land within urban areas	18211	Urban Open Land	x	x			

APPENDIX I. Continued.

FLUCCS		FLUCCS classes used by each Water Management District						
		NWF	SR 2005-	SF	SJR	SWF		
LCCODE	FLUCCS LC Description	FLCS CODE	FLCS NAME	2004	2008	2004	2004	2008
1920	1920: MDC - Inactive Land with street patterns but without structures	18211	Urban Open Land		x			
2100	CROPLAND AND PASTURELAND	18321	Cropland/Pasture					x
2110	2110 - Improved pastures	183213	Improved Pasture	x	x	x	x	
2120	2120 - Unimproved pastures	183214	Unimproved/Woodland Pasture	x	x	x	x	
2130	2130 - Woodland pastures	183214	Unimproved/Woodland Pasture	x	x	x	x	
2140	2140 - Row crops	183211	Row crops	x	x	x	x	x
2143	2143: Potatoes and cabbage	183211	Row crops				x	
2150	2150 - Field crops	183212	Field Crops	x	x	x	x	
2153	2153: Hay Fields	183212	Field Crops	x	x			
2156	2156 - Sugar Cane	1832121	Sugarcane			x		
2160	2160 - Mixed Crops	18321	Cropland/Pasture			x	x	
2200	2200: Tree crops	18322	Orchards/Groves	x			x	x
2210	2210 - Citrus groves	183221	Citrus	x	x	x	x	
2220	2220 - Fruit Orchards	183222	Fruit Orchards	x	x	x		
2230	2230 - Other Groves	18322	Orchards/Groves	x	x	x		
2240	2240: Abandoned tree crops	183224	Fallow Orchards				x	
2300	2300: RU - Feeding Operations	183251	Feeding Operations		x			x
2310	2310 - Cattle feeding operations	183251	Feeding Operations	x	x	x	x	
2320	2320 - Poultry feeding operations	183251	Feeding Operations	x	x	x	x	
2400	2400 - Nurseries and Vineyards	18324	Vineyard & Nurseries	x	x	x	x	x
2410	2410 - Tree nurseries	183241	Tree Nurseries	x	x	x	x	
2420	2420 - Sod farms	183242	Sod Farms	x	x	x	x	
2430	2430 - Ornamentals	183243	Ornamentals	x	x	x	x	
2431	2431: shade ferns	183243	Ornamentals				x	
2432	2432: hammock ferns	183243	Ornamentals				x	
2450	2450: Floriculture	183245	Floriculture				x	
2500	2500 - Specialty Farms	183252	Specialty Farms	x	x	x	x	x
2510	2510 - Horse farms	183252	Specialty Farms	x	x	x	x	
2520	2520 - Dairies	183252	Specialty Farms	x	x	x	x	
2540	2540 - Aquaculture	3211	Aquacultural Ponds	x	x	x	x	
2550	TROPICAL FISH FARMS	183252	Specialty Farms					x
2600	OTHER OPEN LANDS <RURAL>	1831	Rural Open					x
2610	2610: Fallow cropland	1832151	Fallow Cropland	x	x		x	
3100	3100 - Herbaceous (Dry Prairie)	1831	Rural Open	x	x	x	x	x
3200	3200 - Upland Shrub and Brush land	1500	Shrub and Brushland	x	x	x	x	x
3210	3210 - Palmetto Prairies	1311	Mesic Flatwoods	x	x	x		

APPENDIX I. Continued.

FLUCCS		FLUCCS classes used by each Water Management District						
		NWF 2004	SR 2005-2008	SF 2004	SJR 2004	SWF 2008		
LCCODE	FLUCCS LC Description	FLCS CODE	FLCS NAME					
3220	3220 - Coastal Scrub	1214	Coastal Scrub	x	x	x		
3230	3230: Abandoned Groves	183224	Fallow Orchards			x		
3300	3300 - Mixed Rangeland	1831	Rural Open	x	x	x	x	x
4100	4100 - Upland Coniferous Forests	1230	Upland Coniferous	x	x	x		x
4110	4110 - Pine Flatwoods	1311	Mesic Flatwoods	x	x	x	x	x
4120	4120 - Longleaf Pine - Xeric Oak	1240	Sandhill	x	x	x	x	x
4130	4130 - Sand Pine	1213	Sand Pine Scrub	x	x	x	x	
4140	4140 - Pine - Mesic Oak	1124	Pine - Mesic Oak	x	x	x		
4200	4200 - Upland Hardwood Forest	1110	Upland Hardwood Forest	x	x	x	x	x
4210	4210 - Xeric Oak	1211	Oak Scrub	x	x	x	x	
4220	4220 - Brazilian Pepper	7300	Brazilian Pepper			x		
4240	4240 - Melaleuca	7200	Melaleuca			x		
4270	4270 - Live Oak	1123	Live Oak	x	x	x		
4271	4271 - Oak - Cabbage Palm Forest	183111	Oak - Cabbage Palm Forests			x		
4280	4280 - Cabbage Palm	1125	Cabbage Palm	x	x	x	x	
4340	4340 - Hardwood / Coniferous Mixed	1400	Mixed Hardwood-Coniferous	x	x	x	x	x
4370	4370 - Australian Pine	7100	Australian Pine			x	x	
4400	4400 - Tree Plantations	183232	Coniferous Plantations		x	x	x	x
4410	4410 - Coniferous Plantations	183232	Coniferous Plantations	x	x	x	x	
4419	6250 - Wet Pinelands Hydric Pine with Land Use code 4410	2450	Wet Coniferous Plantations	x	x	x	x	
4420	4420 - Hardwood Plantations	183231	Hardwood Plantations			x		
4430	4430 - Forest Regeneration Areas	183232	Coniferous Plantations	x	x	x	x	
4439	6430 - Wet Prairies with Land Use code 4410	2450	Wet Coniferous Plantations	x	x	x	x	
5100	5100: Streams and waterways	4100	Natural Rivers & Streams	x	x		x	x
5110	5110 - Natural River, Stream, Waterway	4100	Natural Rivers & Streams			x		
5120	5120 - Channelized Waterways, Canals	4210	Canal			x		
5200	5200 - Lakes	3100	Natural Lakes & Ponds	x	x	x	x	x
5250	5250 - Marshy Lakes	3113	Flatwoods/Prairie/Marsh Lake			x	x	
5300	5300 - Reservoirs	3220	Artificial Impoundment/Reservoir	x		x	x	x
5400	5400: Bays and estuaries	5000	Estuarine				x	x
5410	5410 - Embayments Opening Directly to Gulf or Ocean	5000	Estuarine	x	x	x		
5420	5420 - Embayments Not Opening Directly to Gulf or Ocean	5000	Estuarine	x		x		
5430	5430 - Enclosed Salt Water Ponds Within Salt Marsh	5240	Saltwater Marsh			x	x	
5500	5500: Major springs	3118	Major Springs	x	x		x	
5600	5600 - Slough Waters	2141	Slough	x	x	x	x	
5710	5710 - Atlantic Ocean	6000	Marine			x		

APPENDIX I. Continued.

FLUCCS		FLUCCS classes used by each Water Management District						
		NWF 2004	SR 2005-2008	SF 2004	SJR 2004	SWF 2008		
LCCODE	FLUCCS LC Description	FLCS CODE	FLCS NAME					
5720	5720 - Gulf of Mexico	6000	Marine	x	x	x		x
6100	6100 - Wetland Hardwood Forests	2230	Other Hardwood Wetlands	x	x	x		x
6110	6110 - Bay swamps	22311	Bay Swamp	x	x	x	x	x
6111	6111 - Bayhead	22312	South Florida Bayhead			x		
6120	6120 - Mangrove swamp	5250	Mangrove Swamp		x	x	x	x
6130	6130: Gum Swamps	22132	Gum Pond	x	x			
6140	6140: Titi Swamps	2234	Titi Swamp	x	x			
6150	6150: Stream and Lake Swamps (bottomland)	2233	Mixed Wetland Hardwoods	x	x			x
6170	6170 - Mixed wetland hardwoods	2233	Mixed Wetland Hardwoods	x	x	x	x	
6172	6172 - Mixed Shrubs	21121	Shrub Bog			x		
6180	6180 - Cabbage Palm Savannah	2230	Other Hardwood Wetlands	x	x	x		
6181	6181: Cabbage palm hammock	22323	Cabbage Palm Hammock				x	
6182	6182: Cabbage palm savannah	2230	Other Hardwood Wetlands				x	
6191	6191 - Wet Melaleuca	7400	Exotic Wetland Hardwoods			x		
6200	6200 - Wetland Coniferous Forest	2220	Freshwater Forested Wetlands			x		x
6210	6210 - Cypress	2211	Cypress	x	x	x	x	x
6215	6215 - Cypress - Domes/Heads	2213	Dome Swamp			x		
6216	6216 - Cypress - Mixed Hardwoods	2210	Cypress/Tupelo(incl Cy/Tu mixed)			x		
6220	6220: Pond pine	2222	Pond Pine		x		x	
6230	6230: Atlantic White Cedar	2223	Atlantic White Cedar	x				
6240	6240 - Cypress - Pine - Cabbage Palm	2242	Cypress/Pine/Cabbage Palm			x		
6250	6250 - Wet Pinelands Hydric Pine	22211	Hydric Pine Flatwoods	x	x	x	x	
6260	6260 - Pine Savanna	22212	Hydric Pine Savanna			x		
6300	6300 - Wetland Forested Mixed	2240	Other Wetland Forested Mixed	x	x	x	x	x
6400	VEGETATED NON-FORESTED WETLANDS	2100	Freshwater Non-Forested Wetlands					x
6410	6410 - Freshwater Marshes / Graminoid Prairie-Marsh	2120	Freshwater Marshes	x	x	x	x	x
6411	6411 - Freshwater Marshes - Sawgrass	2131	Sawgrass			x		
6420	6420 - Saltwater Marshes / Halophytic Herbaceous	5240	Saltwater Marsh	x	x	x	x	x
6430	6430 - Wet Prairies	2111	Wet Prairie	x	x	x	x	x
6440	6440 - Emergent aquatic vegetation	2140	Floating/Emergent Aquatic Veget	x	x	x	x	x
6460	6460: Mixed scrub-shrub wetland	2112	Mixed Scrub-Shrub Wetland	x	x		x	
6500	6500 - Non-vegetated Wetland	2300	Non-vegetated Wetland	x	x	x	x	
6510	6510 - Tidal Flats	5220	Tidal Flat	x	x	x		
6520	SHORELINES	9100	Unconsolidated Substrate					x
6530	INTERMITTENT PONDS	2300	Non-vegetated Wetland					x
6540	6540: Oyster Bars	5230	Oyster Bar	x	x			

APPENDIX I. Continued.

FLUCCS		FLUCCS classes used by each Water Management District						
		NWF 2004	SR 2005- 2008	SF 2004	SJR 2004	SWF 2008		
LCCODE	FLUCCS LC Description	FLCS CODE	FLCS NAME					
6600	SALT FLATS	5220	Tidal Flat					x
7100	7100: Beaches other than swimming beaches	1670	Sand Beach (Dry)	x	x		x	x
7200	7200 - Sand other than beaches	1610	Beach Dune	x	x	x	x	x
7300	7300 - Exposed Rock	1760	Exposed Rock			x		
7400	7400 - Disturbed land	1870	Extractive	x	x	x	x	x
7410	7410: Rural land in transition without positive indicators of intended a	1831	Rural Open	x	x		x	
7420	7420 - Borrow areas	3200	Artificial Lakes & Ponds	x	x	x	x	
7430	7430 - Spoil areas	1877	Spoil Area	x	x	x	x	
7450	7450: Burned Areas	1831	Rural Open	x	x			
7500	7500: Riverine Sandbars	4170	Riverine Sandbar	x				
8100	8100 - Transportation	1840	Transportation			x		x
8110	8110 - Airports	1840	Transportation	x	x	x	x	
8113	8113 - Private airports	1840	Transportation			x		
8115	8115 - Grass airports	1840	Transportation			x		
8120	8120 - Railroads and Railyards	1842	Rails	x	x	x	x	
8130	8130: Bus and truck terminals	1840	Transportation	x	x		x	
8140	8140 - Roads and highways	1841	Roads	x	x	x	x	
8150	8150 - Port facilities	1840	Transportation	x		x	x	
8160	8160: Canals and locks	4210	Canal	x	x		x	
8170	8170: Oil, Water or Gas long distance Transmission Lines	1840	Transportation	x	x			
8180	8180: Auto parking facilities	1840	Transportation	x	x		x	
8200	8200 - Communications	1850	Communication	x	x	x	x	x
8300	8300 - Utilities	1860	Utilities			x		x
8310	8310 - Electrical power facilities	1860	Utilities	x	x	x	x	
8320	8320 - Electrical power transmission lines	1860	Utilities	x	x	x	x	
8330	8330 - Water supply plants - Including Pumping Stations	1860	Utilities	x	x	x	x	
8340	8340 - Sewage treatment	3240	Sewage Treatment Pond	x	x	x	x	
8350	8350 - Solid waste disposal	1860	Utilities	x	x	x	x	
8360	8360 - Other Treatment Ponds	3260	Industrial Cooling Pond	x	x	x	x	
8390	8390: Utilities under Construction	1860	Utilities	x	x			
9999	9999: Missing LUCODE or outside SJRWMD	9999						x

APPENDIX J. Acreage and class comparison of scrub mapped by the Cooperative Land Cover map (CLC), Land Use Land Cover (FLUCCS) and Florida Vegetation and Land Cover (FLVEG). Classes that contribute less than 1% of total overlap are grouped into "Other" in each table.

CLC Scrub overlapped with NFWWMD FLUCCS

NFWWMD FLUCCS classes	Acres	Percent
		CLC Scrub
4100: Upland Coniferous Forests	6,159	28%
3220: Coastal Scrub	5,712	26%
4410: Coniferous Plantations	1,864	8%
4110: Pine Flatwoods	1,745	8%
4340: Hardwood Coniferous - Mixed	1,261	6%
6250: Hydric Pine Flatwoods	979	4%
3200: Shrub and Brushland	917	4%
6300: Wetland Forested Mixed	582	3%
7200: Sand other than beaches	525	2%
3300: Mixed Rangeland	489	2%
6460: Mixed Scrub-shrub Wetland	391	2%
3100: Range Land, Herbaceous (Dry Prairie)	239	1%
Other	1,106	5%
Total	21,969	100%

NFWWMD FLUCCS Sand Pine^a overlapped with CLC

CLC classes	Acres	Percent
		FLUCCS Sand Pine
Coniferous Plantations	142	31%
Scrub	126	27%
Rural Open Pine	82	18%
Scrubby Flatwoods	47	10%
High Intensity Urban	23	5%
Mesic Flatwoods	9	2%
Urban Open Pine	9	2%
Saltwater Marsh	6	1%
Maritime Hammock	6	1%
Other	11	2%
Total	459	100%

NFWWMD FLUCCS Xeric Oak^a overlapped with CLC

CLC classes	Acres	Percent
		FLUCCS Xeric Oak
Sandhill	5,618	74%
Coniferous Plantations	943	12%
High Intensity Urban	281	4%
Upland Pine	165	2%
Not classed by CLC ^c	143	2%
Scrub	135	2%
Rural Open Pine	86	1%
Bare Soil/Clear Cut	68	1%
Other	126	2%
Total	7,563	100%

NFWWMD FLUCCS Coastal Scrub^a overlapped with CLC

CLC classes	Acres	Percent
		FLUCCS Coastal Scrub
Scrub	5,712	68%
Urban	827	10%
Scrubby Flatwoods	448	5%
Beach Dune	290	3%
Mesic Flatwoods	285	3%
Coastal Interdunal Swale	215	3%
Coastal Grassland	120	1%
Urban Open Land	107	1%
Other	437	5%
Total	8,440	100%

APPENDIX J. Continued**CLC Scrub overlapped with SRWMD FLUCCS**

SRWMD FLUCCS classes	Acres	Percent
		CLC Scrub
3200: Shrub and Brushland	660	32%
4430: Forest Regeneration Areas	500	24%
3300: Mixed Rangeland	331	16%
3220: Coastal Scrub	191	9%
4340: Hardwood Coniferous - Mixed	93	5%
3100: Range Land, Herbaceous (Dry Prairie)	72	4%
4130: Sand Pine	50	2%
4410: Coniferous Plantations	28	1%
4110: Pine Flatwoods	28	1%
Other	92	5%
Total	2,045	100%

SRWMD FLUCCS Sand Pine^a overlapped with CLC

CLC classes	Acres	Percent
		FLUCCS Sand Pine
Upland Pine	1,551	53%
Coniferous Plantations	1,220	42%
Scrub	50	2%
Successional Hardwood Forest	27	1%
Shrub and Brushland	19	1%
Rural Open Pine	15	1%
Other	40	1%
Total	2,923	100%

SRWMD FLUCCS Xeric Oak^a overlapped with CLC

CLC classes	Acres	Percent
		FLUCCS Xeric Oak
Sandhill	5,418	67%
Low Structure Density	846	11%
Coniferous Plantations	515	6%
Successional Hardwood Forest	485	6%
Rural Open Forested	268	3%
Rural Open Pine	195	2%
Unimproved/Woodland Pasture	99	1%
Xeric Hammock	64	1%
Mesic Flatwoods	64	1%
Rural Open	56	1%
Other	36	0%
Total	8,044	100%

SRWMD FLUCCS Coastal Scrub^a overlapped with CLC

CLC classes	Acres	Percent
		FLUCCS Coastal Scrub
Scrub	191	30%
Mesic Flatwoods	151	24%
Scrubby Flatwoods	103	16%
Mesic Hammock	41	7%
Hydric Hammock	34	5%
Low Structure Density	26	4%
Saltwater Marsh	22	4%
High Intensity Urban	18	3%
Maritime Hammock	17	3%
Rural Open	16	3%
Other	9	1%
Total	628	100%

APPENDIX J. Continued**CLC Scrub overlapped with SJRWMD FLUCCS**

SJRWMD FLUCCS classes	Acres	Percent
		CLC Scrub
4130: Sand pine	187,457	59%
4430: Forest regeneration	52,747	17%
3200: Shrub and brushland (wax myrtle or saw p	20,709	7%
4340: Upland mixed coniferous/hardwood	18,254	6%
4110: Pine flatwoods	10,848	3%
3100: Herbaceous upland nonforested	3,929	1%
4410: Coniferous pine	3,239	1%
3300: Mixed upland nonforested	3,168	1%
2120: Unimproved pastures	3,001	1%
4210: Xeric oak	2,374	1%
4120: Longleaf pine - xeric oak	1,796	1%
Other	8,936	3%
Total	316,459	100%

SJRWMD FLUCCS Sand Pine^a overlapped with CLC

CLC classes	Acres	Percent
		FLUCCS Sand Pine
Scrub	187,457	95%
Sandhill	3,005	2%
Mesic Flatwoods	1,576	1%
Scrubby Flatwoods	1,173	1%
High Intensity Urban	1,053	1%
Other	3,554	2%
Total	197,818	100%

SJRWMD FLUCCS Xeric Oak^a overlapped with CLC

CLC classes	Acres	Percent
		FLUCCS Xeric Oak
Sandhill	37,685	73%
Low Structure Density	2,730	5%
Scrub	2,374	5%
Maritime Hammock	2,031	4%
Xeric Hammock	1,884	4%
High Intensity Urban	999	2%
Successional Hardwood Forest	924	2%
Scrubby Flatwoods	722	1%
Mesic Flatwoods	431	1%
Rural Open	270	1%
Coastal Strand	262	1%
Other	1,395	3%
Total	51,706	100%

APPENDIX J. Continued**CLC Scrub overlapped with SFWMD FLUCCS**

SFWMD FLUCCS classes	Acres	Percent
		CLC Scrub
3200: Shrub and brushland	7,274	21%
2120: Unimproved pastures	6,279	18%
4130: Sand Pine	4,608	13%
2130: Woodland pastures	4,541	13%
4110: Pine Flatwoods	3,612	10%
3210: Palmetto Prairies	1,818	5%
4340: Hardwood / Coniferous Mixed	1,316	4%
4210: Xeric Oak	816	2%
3220: Coastal Scrub	749	2%
4200: Upland Hardwood Forest	741	2%
3300: Mixed Rangeland	598	2%
4120: Longleaf Pine: Xeric Oak	451	1%
Other	1,928	6%
Total	34,729	100%

SFWMD FLUCCS Sand Pine^a overlapped with CLC

CLC classes	Acres	Percent
		FLUCCS Sand Pine
Scrub	4,608	68%
Scrubby Flatwoods	1,012	15%
Mesic Flatwoods	267	4%
High Intensity Urban	224	3%
Sandhill	76	1%
Urban Open Forested	74	1%
Depression Marsh	73	1%
Urban Open Land	55	1%
Wet Flatwoods	55	1%
Cutthroat Seep	54	1%
Not classed by CLC ^c	50	1%
Other	193	3%
Total	6,739	100%

SFWMD FLUCCS Xeric Oak^a overlapped with CLC

CLC classes	Acres	Percent
		FLUCCS Xeric Oak
Scrub	816	32%
High Intensity Urban	740	29%
Sandhill	224	9%
Scrubby Flatwoods	151	6%
Not classed by CLC ^c	141	5%
Mesic Flatwoods	138	5%
Xeric Hammock	127	5%
Rural Open Forested	83	3%
Low Structure Density	35	1%
Rural Open	26	1%
Mesic Hammock	24	1%
Urban Open Land	20	1%
Other	42	2%
Total	2,569	100%

SFWMD FLUCCS Coastal Scrub^a overlapped with CLC

CLC classes	Acres	Percent
		FLUCCS Coastal Scrub
Coastal Grassland	1,199	20%
Scrub	749	13%
Keys Tidal Rock Barren	746	13%
Coastal Strand	721	12%
Maritime Hammock	613	10%
Mangrove Swamp	378	6%
Beach Dune	303	5%
Bare Soil/Clear Cut	187	3%
Mesic Hammock	163	3%
Urban Open Land	109	2%
Not classed by CLC ^c	96	2%
Mesic Flatwoods	92	2%
Other	572	10%
Total	5,928	100%

APPENDIX J. Continued**CLC Scrub overlapped with SWFWMD FLUCCS**

SWFWMD FLUCCS classes	Acres	Percent CLC Scrub
3200: Shrub and Brushland	16,758	31%
4110: Pine Flatwoods	15,237	29%
4340: Hardwood Conifer Mixed	5,205	10%
1900: Open Land	5,140	10%
4100: Upland Coniferous Forest	3,249	6%
1100: Residential Low Density	3,077	6%
2600: Other Open Lands <Rural>	1,641	3%
4400: Tree Plantations	642	1%
4120: Longleaf Pine - Xeric Oak	611	1%
4200: Upland Hardwood Forests - Part 1	276	1%
6150: Stream And Lake Swamps (Bottomland)	276	1%
Other	1,213	2%
Total	53,325	100%

SWFWMD FLUCCS Shrub and Brushland^b

CLC classes	Acres	Percent FLUCCS Sand Pine
Mesic Flatwoods	130,920	44%
Not classed by CLC ^c	71,896	24%
Dry Prairie	40,582	14%
Scrub	16,758	6%
Scrubby Flatwoods	9,174	3%
Unimproved/Woodland Pasture	5,443	2%
Wet Flatwoods	3,599	1%
Sandhill	2,845	1%
Shrub and Brushland	2,468	1%
Rural Open	2,415	1%
Coniferous Plantations	1,846	1%
Depression Marsh	1,771	1%
Other	8,016	3%
Total	297,733	100%

CLC Scrub overlapped with FLVEG (statewide)

FLVEG classes	Acres	Percent CLC Scrub
Sand Pine Scrub	159,814	37%
Xeric Oak Scrub	85,766	20%
Pinelands	47,437	11%
Dry Prairie	25,438	6%
Bare Soil/Clearcut	21,478	5%
Shrub and Brushland	17,897	4%
High Impact Urban	17,127	4%
Sandhill	9,149	2%
Mixed Pine-Hardwood Forest	8,304	2%
Low Impact Urban	7,725	2%
Hardwood Hammocks and Forest	5,757	1%
Mixed Wetland Forest	3,951	1%
Freshwater Marsh and Wet Prairie	3,727	1%
Other	14,960	3%
Total	429,669	100%

FLVEG Sand Pine Scrub overlapped with CLC (statewide)

CLC classes	Acres	Percent FLVEG Sand Pine Scrub
Scrub	159,814	82%
Not classed by CLC ^c	17,371	9%
Mesic Flatwoods	3,864	2%
Scrubby Flatwoods	3,627	2%
Sandhill	3,385	2%
Coniferous Plantations	1,301	1%
Other	4,877	3%
Total	194,239	100%

APPENDIX J. Continued**FLVEG Xeric Oak Scrub overlapped with CLC (statewide)**

CLC classes	Acres	Percent FLVEG Xeric Oak
		Scrub
Scrub	85,766	58%
Not classed by CLC ^c	21,107	14%
Scrubby Flatwoods	13,232	9%
Mesic Flatwoods	10,111	7%
Sandhill	4,869	3%
Maritime Hammock	1,526	1%
Xeric Hammock	1,466	1%
High Intensity Urban	1,228	1%
Wet Flatwoods	929	1%
Depression Marsh	895	1%
Rural Open	779	1%
Other	4,997	3%
Total	146,905	100%

^a FLUCCS class that corresponds to scrub according to the FWC Florida Land Cover Classification System. Note that SJRWMD does not use the coastal scrub class.

^b SWFWMD FLUCCS class with high potential to overlap scrub. Xeric oak, sand pine and coastal scrub classes used by other districts are not used in SWFWMD.

^c Areas within FLVEG and SWFWMD Shrub and Brushland that were reviewed with aerial photography, determined not to be a focal community type, and deleted from review such that the original FLUCCS classification is represented in the final land cover; or areas within FLUCCS Sand Pine, Xeric Oak and Coastal Scrub that were inadvertently not reviewed.

APPENDIX K. Overlap of scrubby flatwoods mapped by the Cooperative Land Cover map (CLC) with Land Use Land Cover (FLUCCS) and Florida Vegetation and Land Cover (FLVEG). Classes that contribute less than 1% of total overlap are grouped into "Other" in each table.

CLC Scrubby Flatwoods overlapped with NFWMD FLUCCS

NFWMD FLUCCS classes	Percent CLC	
	Acres	Scrubby Flatwoods
4110: Pine Flatwoods	1,508	26%
4100: Upland Coniferous Forests	720	13%
6250: Hydric Pine Flatwoods	534	9%
3300: Mixed Rangeland	521	9%
3220: Coastal Scrub	448	8%
4410: Coniferous Plantations	367	6%
3200: Shrub and Brushland	359	6%
4430: Forest Regeneration Areas	319	6%
6300: Wetland Forested Mixed	269	5%
6460: Mixed Scrub-shrub Wetland	255	4%
4340: Hardwood Coniferous - Mixed	155	3%
4130: Sand Pine	47	1%
Other	232	4%
Total	5,733	100%

CLC Scrubby Flatwoods overlapped with SJRWMD FLUCCS

SJRWMD FLUCCS classes	Percent CLC	
	Acres	Scrubby Flatwoods
4110: Pine flatwoods	5,766	25%
3200: Shrub and brushland	3,242	14%
4340: Upland mixed coniferous/hardwood	2,806	12%
2120: Unimproved pastures	2,655	12%
3300: Mixed upland nonforested	2,070	9%
4130: Sand pine	1,173	5%
2130: Woodland pastures	1,012	4%
4430: Forest regeneration	959	4%
4210: Xeric oak	722	3%
4120: Longleaf pine - xeric oak	408	2%
4410: Coniferous pine	393	2%
3100: Herbaceous upland nonforested	344	2%
6170: Mixed wetland hardwoods	190	1%
Other	991	4%
Total	22,734	100%

CLC Scrubby Flatwoods overlapped with SRWMD FLUCCS

SRWMD FLUCCS classes	Percent CLC	
	Acres	Scrubby Flatwoods
3300: Mixed Rangeland	1,693	24%
4340: Hardwood Coniferous - Mixed	1,443	21%
4410: Coniferous Plantations	1,330	19%
3200: Shrub and Brushland	784	11%
4200: Upland Hardwood Forests	462	7%
4100: Upland Coniferous Forests	304	4%
4110: Pine Flatwoods	165	2%
6300: Wetland Forested Mixed	141	2%
6170: Mixed Wetland Hardwoods	113	2%
3220: Coastal Scrub	103	1%
2130: Woodland Pastures	77	1%
6430: Wet Prairies	58	1%
Other	285	4%
Total	6,957	100%

CLC Scrubby Flatwoods overlapped with SFWMD FLUCCS

SFWMD FLUCCS classes	Percent CLC	
	Acres	Scrubby Flatwoods
2120: Unimproved pastures	4,059	23%
4110: Pine Flatwoods	3,235	18%
3200: Upland Shrub and Brush land	3,175	18%
3210: Palmetto Prairies	2,406	14%
2130: Woodland pastures	1,515	8%
4130: Sand Pine	1,012	6%
4340: Hardwood / Coniferous Mixed	590	3%
3300: Mixed Rangeland	532	3%
2110: Improved pastures	219	1%
4120: Longleaf Pine: Xeric Oak	208	1%
4210: Xeric Oak	151	1%
4410: Coniferous Plantations	148	1%
3100: Herbaceous (Dry Prairie)	107	1%
Other	467	3%
Total	17,823	100%

APPENDIX K. Continued**CLC Scrubby Flatwoods overlapped with SWFWMD FLUCCS**

SWFWMD FLUCCS classes	Percent CLC	
	Acres	Scrubby Flatwoods
3200: Shrub and Brushland	9,174	32%
4110: Pine Flatwoods	8,693	30%
1900: Open Land	3,862	13%
4340: Hardwood Conifer Mixed	2,330	8%
4120: Longleaf Pine - Xeric Oak	2,126	7%
4100: Upland Coniferous Forest	1,058	4%
2600: Other Open Lands <Rural>	529	2%
1100: Residential Low Density	470	2%
6150: Stream and Lake Swamps	235	1%
4200: Upland Hardwood Forests - Part 1	160	1%
Other	482	2%
Total	29,119	100%

CLC Scrubby Flatwoods overlapped with FLVEG (statewide)

FLVEG classes	Percent CLC	
	Acres	Scrubby Flatwoods
Pinelands	20,335	25%
Dry Prairie	16,080	20%
Xeric Oak Scrub	13,232	16%
Shrub and Brushland	4,885	6%
High Impact Urban	4,290	5%
Bare Soil/Clearcut	4,162	5%
Sand Pine Scrub	3,627	4%
Mixed Pine-Hardwood Forest	2,644	3%
Sandhill	2,474	3%
Hardwood Hammocks and Forest	2,376	3%
Mixed Wetland Forest	1,620	2%
Low Impact Urban	1,029	1%
Hardwood Swamp	964	1%
Freshwater Marsh and Wet Prairie	921	1%
Shrub Swamp	671	1%
Improved Pasture	636	1%
Cypress Swamp	557	1%
Other	1,866	2%
Total	82,371	100%

APPENDIX L. Acreage and class comparison of sandhill mapped by the Cooperative Land Cover map (CLC), Land Use Land Cover (FLUCCS) and Florida Vegetation and Land Cover (FLVEG). Classes that contribute less than 1% of total overlap are grouped into "Other" in each table.

CLC Sandhill overlapped with NFWMD FLUCCS

NFWMD FLUCCS classes	Acres	Percent CLC
		Sandhill
4100: Upland Coniferous Forests	183,469	44%
3300: Mixed Rangeland	50,426	12%
4110: Pine Flatwoods	40,740	10%
4340: Hardwood Coniferous - Mixed	33,483	8%
4120: Longleaf Pine - Xeric Oak	29,706	7%
3200: Shrub and Brushland	22,440	5%
4410: Coniferous Plantations	18,321	4%
4430: Forest Regeneration Areas	8,785	2%
6300: Wetland Forested Mixed	5,803	1%
4210: Xeric Oak	5,618	1%
6250: Hydric Pine Flatwoods	4,983	1%
Other	10,489	3%
Total	414,263	100%

NFWMD FLUCCS Longleaf - Xeric Oak overlapped with CLC

CLC classes	Acres	Percent FLUCCS Longleaf
		Pine - Xeric Oak
Sandhill	29,706	82%
Upland Pine	2,512	7%
Successional Hardwood Forest	1,223	3%
Coniferous Plantations	953	3%
High Intensity Urban	902	2%
Bare Soil/Clear Cut	230	1%
Rural Open	219	1%
Other	443	1%
Total	36,188	100%

CLC Sandhill overlapped with SRWMD FLUCCS

SRWMD FLUCCS classes	Acres	Percent CLC
		Sandhill
4340: Hardwood Coniferous - Mixed	8,117	22%
3300: Mixed Rangeland	6,599	18%
4210: Xeric Oak	5,418	15%
3100: Range Land, Herbaceous (Dry Prairi	2,653	7%
4200: Upland Hardwood Forests	2,643	7%
4120: Longleaf Pine - Xeric Oak	2,336	6%
4100: Upland Coniferous Forests	2,008	5%
4410: Coniferous Plantations	1,794	5%
4430: Forest Regeneration Areas	1,652	4%
2130: Woodland Pastures	1,555	4%
Not classed by CLC ^a	539	1%
3200: Shrub and Brushland	392	1%
4110: Pine Flatwoods	375	1%
2120: Unimproved pastures	283	1%
Other	415	1%
Total	36,779	100%

SRWMD FLUCCS Longleaf - Xeric Oak overlapped with CLC

CLC classes	Acres	Percent FLUCCS Longleaf
		Pine - Xeric Oak
Sandhill	2,336	60%
Successional Hardwood Forest	597	15%
Upland Pine	288	7%
Coniferous Plantations	184	5%
Rural Open Forested	183	5%
Low Structure Density	109	3%
Rural Open Pine	57	1%
Shrub and Brushland	41	1%
Rural Open	37	1%
Mesic Flatwoods	26	1%
Other	42	1%
Total	3,899	100%

APPENDIX L. Continued

CLC Sandhill overlapped with SJRWMD FLUCCS

SJRWMD FLUCCS classes	Percent CLC	
	Acres	Sandhill
4210: Xeric oak	37,685	24%
4110: Pine flatwoods	35,869	23%
4120: Longleaf pine - xeric oak	35,629	23%
4340: Upland mixed coniferous/hardwood	17,450	11%
4430: Forest regeneration	10,534	7%
4410: Coniferous pine	7,431	5%
4130: Sand pine	3,005	2%
3300: Mixed upland nonforested	1,666	1%
2130: Woodland pastures	1,635	1%
3200: Shrub and brushland	924	1%
6250: Hydric pine flatwoods	805	1%
Other	4,574	3%
Total	157,207	100%

SJRWMD FLUCCS Longleaf - Xeric Oak overlapped with CLC

CLC classes	Percent FLUCCS Longleaf	
	Acres	Pine - Xeric Oak
Sandhill	35,629	80%
Scrub	1,796	4%
High Intensity Urban	1,720	4%
Successional Hardwood Forest	1,247	3%
Mesic Flatwoods	973	2%
Low Structure Density	917	2%
Scrubby Flatwoods	408	1%
Other	1,965	4%
Total	44,655	100%

CLC Sandhill overlapped with SFWMD FLUCCS

SFWMD FLUCCS classes	Percent CLC	
	Acres	Sandhill
4110 - Pine Flatwoods	530	24%
4340 - Hardwood / Coniferous Mixed	383	17%
4120 - Longleaf Pine - Xeric Oak	232	10%
4200 - Upland Hardwood Forest	231	10%
4210 - Xeric Oak	224	10%
2130 - Woodland pastures	192	9%
3200 - Upland Shrub and Brush land	168	8%
2120 - Unimproved pastures	88	4%
4130 - Sand Pine	76	3%
3210 - Palmetto Prairies	40	2%
1850 - Parks and zoos	28	1%
Other	42	2%
Total	2,235	100%

SFWMD FLUCCS Longleaf - Xeric Oak overlapped with CLC

CLC classes	Percent FLUCCS Longleaf	
	Acres	Pine - Xeric Oak
Scrub	451	40%
Sandhill	232	21%
Scrubby Flatwoods	208	19%
Not classed by CLC ^a	58	5%
High Intensity Urban	49	4%
Mesic Flatwoods	44	4%
Bare Soil/Clear Cut	20	2%
Urban Open Pine	20	2%
Wet Flatwoods	9	1%
Improved Pasture	8	1%
Other	25	2%
Total	1,124	100%

APPENDIX L. Continued.

CLC Sandhill overlapped with SWFWMD FLUCCS			SWFWMD FLUCCS Longleaf - Xeric Oak overlapped with CLC		
SWFWMD FLUCCS classes	Acres	Percent CLC Sandhill	CLC classes	Acres	Percent FLUCCS Longleaf Pine - Xeric Oak
4120: Longleaf Pine - Xeric Oak	125,896	64%	Sandhill	125,896	78%
1900: Open Land	27,245	14%	Successional Hardwood Forest	5,996	4%
1100: Residential Low Density	19,394	10%	Rural Open Forested	5,427	3%
4110: Pine Flatwoods	8,869	4%	Rural Open	5,159	3%
4340: Hardwood Conifer Mixed	6,458	3%	Not classed by CLC ^a	3,812	2%
4100: Upland Coniferous Forest	3,043	2%	Xeric Hammock	3,644	2%
3200: Shrub And Brushland	2,845	1%	Coniferous Plantations	2,544	2%
2600: Other Open Lands <Rural>	1,560	1%	Scrubby Flatwoods	2,126	1%
Other	2,727	1%	Mesic Flatwoods	1,655	1%
Total	198,038	100%	Mesic Hammock	1,146	1%
			Unimproved/Woodland Pasture	1,000	1%
			Other	4,008	2%
			Total	162,414	100%

CLC Sandhill overlapped with FLVEG (statewide)			FLVEG Sandhill overlapped with CLC (statewide)		
FLVEG classes	Acres ^b	Percent CLC Sandhill	CLC classes	Acres	Percent FLVEG Sandhill
Sandhill	465,524	58%	Sandhill	465,524	61%
Pinelands	149,306	18%	Not classed by CLC ^a	181,268	24%
Shrub and Brushland	42,956	5%	Coniferous Plantations	51,471	7%
High Impact Urban	36,013	4%	Successional Hardwood Forest	11,731	2%
Mixed Pine-Hardwood Forest	27,550	3%	Scrub	9,149	1%
Bare Soil/Clearcut	25,423	3%	Upland Pine	8,650	1%
Hardwood Hammocks and Forest	14,456	2%	Mesic Flatwoods	5,768	1%
Low Impact Urban	12,997	2%	Rural Open	4,458	1%
Mixed Wetland Forest	5,612	1%	Xeric Hammock	4,422	1%
Xeric Oak Scrub	4,869	1%	Other	19,327	3%
Hardwood Swamp	4,105	1%	Total	761,767	100%
Other	19,545	2%			
Total	808,356	100%			

^a Within FLVEG these are areas that were reviewed with aerial photography, determined not to be a focal community type, and deleted from review such that the original FLUCCS classification is represented in the final land cover. Within FLUCCS Longleaf Pine - Xeric Oak, these are areas that were inadvertently not reviewed.

^b The CLC Sandhill was revised after this analysis had been completed so that statewide acres reported here are slightly less than those in the final cooperative land cover map.

APPENDIX M. Acreage and class comparison of dry prairie mapped by the Cooperative Land Cover map (CLC), Land Use Land Cover (FLUCCS) and Florida Vegetation and Land Cover (FLVEG). Classes that contribute less than 1% of total overlap are grouped into "Other" in each table.

CLC Dry Prairie overlapped with SJRWMD FLUCCS

SJRWMD FLUCCS classes	Acres	Percent CLC
		Dry Prairie
2120: Unimproved pastures	294	83%
3200: Shrub and brushland	58	16%
Other	2	1%
Total	353	100%

SJRWMD FLUCCS Herbaceous Upland Non-forested^a overlapped with CLC

CLC classes	Acres	Percent FLUCCS
		Herbaceous upland non-forested
Not classed by CLC ^b	104,986	88%
Scrub	3,929	3%
Mesic Flatwoods	3,021	3%
Rural Open	1,687	1%
Improved Pasture	952	1%
Other	4,473	4%
Total	119,049	100%

CLC Dry Prairie overlapped with SWFWMD FLUCCS

SWFWMD FLUCCS classes	Acres	Percent CLC
		Dry Prairie
3200: Shrub and Brushland	40,582	91%
6410: Freshwater Marshes	1,560	4%
4110: Pine Flatwoods	773	2%
6430: Wet Prairies	355	1%
6150: Stream and Lake Swamps	310	1%
3100: Herbaceous	267	1%
Other	551	1%
Total	44,397	100%

SWFWMD FLUCCS Herbaceous (Dry Prairie)^a overlapped with CLC

CLC classes	Acres	Percent FLUCCS
		Herbaceous (Dry Prairie)
Not classed by CLC ^b	2,227	72%
Wet Prairie	276	9%
Dry Prairie	267	9%
Wet Flatwoods	93	3%
Depression Marsh	65	2%
Mesic Flatwoods	58	2%
Rural Open	33	1%
Basin Marsh	25	1%
Unimproved/Woodland Pasture	20	1%
Riverine Sand Bar	16	1%
Other	29	1%
Total	3,109	100%

APPENDIX M. Continued**CLC Dry Prairie overlapped with SFWMD FLUCCS**

SFWMD FLUCCS classes	Acres	Percent CLC
		Dry Prairie
3210: Palmetto Prairies	52,633	48%
2120: Unimproved pastures	44,236	40%
3200: Upland Shrub and Brush land	2,921	3%
2110: Improved pastures	2,563	2%
3100: Herbaceous (Dry Prairie)	2,045	2%
3300: Mixed Rangeland	1,807	2%
6430: Wet Prairies	1,239	1%
Other	1,865	2%
Total	109,310	100%

SFWMD FLUCCS Herbaceous (Dry Prairie)^a overlapped with CLC

CLC classes	Acres	Percent FLUCCS
		Herbaceous (Dry Prairie)
Exotic Plants	3,513	17%
Improved Pasture	2,262	11%
Rural Open	2,062	10%
Dry Prairie	2,045	10%
Mesic Flatwoods	1,991	10%
Agriculture	1,918	9%
Low Structure Density	823	4%
Glades Marsh	760	4%
Roads	647	3%
Spoil Area	458	2%
High Intensity Urban	381	2%
Wet Prairie	373	2%
Coniferous Plantations	359	2%
Canal/Ditch	329	2%
Wet Flatwoods	270	1%
Other	2,526	12%
Total	20,716	100%

SFWMD FLUCCS Palmetto Prairies^a overlapped with CLC

CLC classes	Acres	Percent FLUCCS
		Palmetto Prairie
Mesic Flatwoods	54,145	37%
Dry Prairie	52,633	36%
Low Structure Density	10,758	7%
Wet Prairie	3,155	2%
Wet Flatwoods	2,788	2%
High Intensity Urban	2,736	2%
Coniferous Plantations	2,730	2%
Scrubby Flatwoods	2,406	2%
Shrub and Brushland	2,171	1%
Other	14,034	10%
Total	147,558	100%

APPENDIX M. Continued

CLC Dry Prairie overlapped with FLVEG (statewide)			FLVEG Dry Prairie overlapped with CLC (statewide)		
FLVEG classes	Percent CLC		CLC classes	Percent FLVEG	
	Acres	Dry Prairie		Acres	Dry Prairie
Dry Prairie	121,132	79%	Not classed by CLC ^b	651,789	53%
Pinelands	11,378	7%	Mesic Flatwoods	259,198	21%
Freshwater Marsh and Wet Prairie	9,377	6%	Dry Prairie	121,132	10%
Improved Pasture	2,388	2%	Improved Pasture	28,149	2%
Shrub Swamp	1,599	1%	Scrub	25,438	2%
Shrub and Brushland	1,430	1%	Wet Flatwoods	17,226	1%
High Impact Urban	1,353	1%	Scrubby Flatwoods	16,080	1%
Bare Soil/Clearcut	1,123	1%	Unimproved/Woodland Pasture	16,048	1%
Hardwood Hammocks and Forest	980	1%	Coniferous Plantations	13,953	1%
Other	3,300	2%	Wet Prairie	12,913	1%
Total	154,060	100%	Rural Open	10,120	1%
			Low Structure Density	8,104	1%
			Other	48,204	4%
			Total	1,228,353	100%

^a FLUCCS class that potentially corresponds to dry prairie according to the FWC Florida Land Cover Classification System and/or FLUCCS description. For FLUCCS comparisons, only water management districts within the historic range of dry prairie (Bridges 2006) are evaluated.

^b Within FLVEG these are areas that were reviewed with aerial photography, determined not to be a focal community type, and deleted from review such that the original FLUCCS classification is represented in the final land cover. Within FLUCCS Herbaceous, these are areas that were not reviewed because of the low potential to be dry prairie based on previous congruency analyses.

APPENDIX N. Overlap of pine rockland and rockland hammock mapped by the Cooperative Land Cover map (CLC) with Land Use Land Cover (FLUCCS) and Florida Vegetation and Land Cover (FLVEG). Classes that contribute less than 1% of total overlap are grouped into "Other" in each table.

CLC Pine Rockland overlapped with SFWMD FLUCCS

SFWMD FLUCCS classes	Acres	Percent CLC
		Pine Rockland
4110 - Pine Flatwoods	7,268	44%
6250 - Wet Pinelands Hydric Pine	5,454	33%
3200 - Upland Shrub and Brush land	1,146	7%
3300 - Mixed Rangeland	788	5%
6411 - Freshwater Marshes - Sawgrass	640	4%
6172 - Mixed Shrubs	347	2%
1850 - Parks and zoos	160	1%
6120 - Mangrove swamp	145	1%
6430 - Wet Prairies	131	1%
6170 - Mixed wetland hardwoods	99	1%
Other	458	3%
Total	16,637	100%

CLC Pine Rockland overlapped with FLVEG (statewide)

FLVEG classes	Acres	Percent CLC
		Pine Rockland
Pinelands	6,612	40%
Shrub Swamp	3,307	20%
Sawgrass Marsh	3,226	19%
Low Impact Urban	826	5%
High Impact Urban	647	4%
Dry Prairie	435	3%
Exotic Plants	310	2%
Tropical Hardwood Hammock	275	2%
Hardwood Hammocks and Forest	225	1%
Freshwater Marsh and Wet Prairie	212	1%
Hardwood Swamp	176	1%
Mangrove Swamp	93	1%
Other	292	2%
Total	16,637	100%

CLC Rockland Hammock overlapped with SFWMD FLUCCS

SFWMD FLUCCS classes	Acres ^a	Percent CLC
4200 - Upland Hardwood Forest	8,381	44%
6120 - Mangrove swamp	2,764	14%
6170 - Mixed wetland hardwoods	2,702	14%
6172 - Mixed Shrubs	1,368	7%
3200 - Upland Shrub and Brush land	887	5%
6210 - Cypress	390	2%
6411 - Freshwater Marshes - Sawgrass	340	2%
6250 - Wet Pinelands Hydric Pine	304	2%
4340 - Hardwood / Coniferous Mixed	267	1%
6215 - Cypress - Domes/Heads	215	1%
4271 - Oak - Cabbage Palm Forest	210	1%
4110 - Pine Flatwoods	187	1%
1210 - Medium Density: Fixed Single Family Units	153	1%
6420 - Saltwater Marshes / Halophytic Herbaceous	121	1%
4280 - Cabbage Palm	109	1%
6111 - Bayhead	97	1%
Other	690	4%
Total	19,185	100%

APPENDIX N. Continued

CLC Rockland Hammock overlapped with FLVEG (statewide)			FLVEG Tropical Hardwood Hammock overlapped with CLC (statewide)		
FLVEG classes	Acres ^a	Percent CLC Rockland Hammock	CLC classes	Acres	Percent FLVEG Tropical Hardwood Hammock
Tropical Hardwood Hammock	7,939	41%	Rockland Hammock	7,939	52%
Mangrove Swamp	1,823	10%	(blank)	3,857	25%
Pinelands	1,690	9%	Mangrove Swamp	1,198	8%
Cypress Swamp	1,174	6%	South Florida Bayhead	371	2%
Hardwood Hammocks and Forest	1,073	6%	Keys Tidal Rock Barren	349	2%
Hardwood Swamp	953	5%	Glades Marsh	331	2%
High Impact Urban	877	5%	Pine Rockland	275	2%
Mixed Wetland Forest	661	3%	Freshwater Forested Wetlands	156	1%
Shrub Swamp	552	3%	High Intensity Urban	95	1%
Freshwater Marsh and Wet Prairie	449	2%	Maritime Hammock	87	1%
Salt Marsh	429	2%	Exotic Plants	85	1%
Exotic Plants	414	2%	Urban Open Land	83	1%
Open Water	272	1%	Other	574	4%
Low Impact Urban	250	1%	Total	15,399	100%
Sawgrass Marsh	204	1%			
Cypress/Pine/Cabbage Palm	167	1%			
Other	260	1%			
Total	19,185	100%			

^a The CLC Rockland Hammock was revised after this analysis had been completed so that statewide acres reported here are slightly less than those in the final cooperative land cover map.

APPENDIX O. Acreage and class comparison of mesic flatwoods mapped by the Cooperative Land Cover map (CLC) with pine flatwoods mapped by the Land Use Land Cover (FLUCCS) and pinelands mapped by the Florida Vegetation and Land Cover (FLVEG). Classes that contribute less than 1% of total overlap are grouped into "Other" in each table.

CLC Mesic Flatwoods overlapped with NFWMD FLUCCS		
NFWMD FLUCCS classes	Acres	Percent
		CLC Mesic Flatwoods
6250: Hydric Pine Flatwoods	9,765	22%
4410: Coniferous Plantations	8,668	19%
4110: Pine Flatwoods	7,220	16%
4100: Upland Coniferous Forests	5,915	13%
6300: Wetland Forested Mixed	3,484	8%
3300: Mixed Rangeland	2,589	6%
6460: Mixed Scrub-shrub Wetland	2,205	5%
4340: Hardwood Coniferous - Mixed	1,258	3%
3200: Shrub and Brushland	731	2%
4430: Forest Regeneration Areas	535	1%
Other	2,513	6%
Total	44,883	100%

NFWMD FLUCCS Pine Flatwoods overlapped with CLC		
CLC classes	Acres	Percent FLUCCS
		Pine Flatwoods
Not classed by CLC ^a	171,367	72%
Sandhill	40,740	17%
Mesic Flatwoods	7,220	3%
Coniferous Plantations	4,259	2%
Upland Pine	4,171	2%
Wet Flatwoods	1,788	1%
Scrub	1,745	1%
Scrubby Flatwoods	1,508	1%
Other	7,022	3%
Total	239,819	100%

CLC Mesic Flatwoods overlapped with SRWMD FLUCCS		
SRWMD FLUCCS classes	Acres	Percent
		CLC Mesic Flatwoods
4410: Coniferous Plantations	14,555	44%
4340: Hardwood Coniferous - Mixed	4,622	14%
4110: Pine Flatwoods	2,249	7%
6300: Wetland Forested Mixed	2,085	6%
4100: Upland Coniferous Forests	1,999	6%
3300: Mixed Rangeland	1,233	4%
6170: Mixed Wetland Hardwoods	1,131	3%
6250 - Wet Pinelands Hydric Pine	793	2%
6460: Mixed Scrub-shrub Wetland	669	2%
3200: Shrub and Brushland	635	2%
3100: Range Land, Herbaceous (Dry Prairie)	461	1%
6250: Hydric Pine Flatwoods	420	1%
Other	1,958	6%
Total	32,811	100%

SRWMD FLUCCS Pine Flatwoods overlapped with CLC		
CLC classes	Acres	Percent FLUCCS
		Pine Flatwoods
Not classed by CLC ^a	53,022	91%
Mesic Flatwoods	2,249	4%
Coniferous Plantations	596	1%
Wet Flatwoods	502	1%
Sandhill	375	1%
Other	1,308	2%
Total	58,052	100%

Appendix O. Continued**CLC Mesic Flatwoods overlapped with SJRWMD FLUCCS**

SJRWMD FLUCCS classes	Acres	Percent
		CLC Mesic Flatwoods
2120: Unimproved pastures	45,424	27%
4110: Pine flatwoods	33,427	20%
3200: Shrub and brushland	18,424	11%
4410: Coniferous pine	14,832	9%
2130: Woodland pastures	10,673	6%
4430: Forest regeneration	8,577	5%
3300: Mixed upland nonforested	7,805	5%
4340: Upland mixed coniferous/hardwood	5,447	3%
6250: Hydric pine flatwoods	3,824	2%
6300: Wetland forested mixed	3,433	2%
3100: Herbaceous upland nonforested	3,021	2%
6170: Mixed wetland hardwoods	1,757	1%
6460: Mixed scrub-shrub wetland	8,552	5%
Total	165,196	100%

SJRWMD FLUCCS Pine Flatwoods overlapped with CLC

CLC classes	Acres	Percent FLUCCS
		Pine Flatwoods
Not classed by CLC ^a	277,819	73%
Sandhill	35,869	9%
Mesic Flatwoods	33,427	9%
Scrub	10,848	3%
Scrubby Flatwoods	5,766	2%
Wet Flatwoods	4,793	1%
Other	10,606	3%
Total	379,129	100%

CLC Mesic Flatwoods overlapped with SFWMD FLUCCS

SFWMD FLUCCS classes	Acres	Percent
		CLC Mesic Flatwoods
4110 - Pine Flatwoods	93,310	37%
3210 - Palmetto Prairies	54,145	22%
2120 - Unimproved pastures	49,230	20%
3200 - Upland Shrub and Brush land	10,800	4%
2130 - Woodland pastures	10,391	4%
6250 - Wet Pinelands Hydric Pine	6,812	3%
3300 - Mixed Rangeland	3,961	2%
2110 - Improved pastures	3,793	2%
6172 - Mixed Shrubs	2,890	1%
4340 - Hardwood / Coniferous Mixed	2,457	1%
3100 - Herbaceous (Dry Prairie)	1,991	1%
6410 - Freshwater Marshes / Graminoid Prairie-Marsh	1,986	1%
Other	7,478	3%
Total	249,244	100%

SFWMD FLUCCS Pine Flatwoods overlapped with CLC

CLC classes	Acres	Percent FLUCCS
		Pine Flatwoods
Not classed by CLC ^a	178,082	52%
Mesic Flatwoods	93,310	27%
Wet Flatwoods	19,086	6%
Low Structure Density	13,336	4%
Pine Rockland	7,268	2%
High Intensity Urban	3,656	1%
Scrub	3,612	1%
Scrubby Flatwoods	3,235	1%
Wet Prairie	1,774	1%
Cutthroat Grass Flatwoods	1,731	1%
Other	16,102	5%
Total	341,192	100%

APPENDIX O. Continued**CLC Mesic Flatwoods overlapped with SWFWMD FLUCCS**

SWFWMD FLUCCS classes	Acres	Percent
		CLC Mesic Flatwoods
4110: Pine Flatwoods	152,221	46%
3200: Shrub and Brushland	130,920	40%
4100: Upland Coniferous Forest	13,192	4%
4340: Hardwood Conifer Mixed	12,280	4%
6150: Stream and Lake Swamps	5,399	2%
4400: Tree Plantations	2,982	1%
6410: Freshwater Marshes	1,840	1%
4120: Longleaf Pine - Xeric Oak	1,655	1%
Other	9,190	3%
Total	329,678	100%

SWFWMD FLUCCS Pine Flatwoods overlapped with CLC

CLC classes	Acres	Percent
		FLUCCS Pine Flatwoods
Mesic Flatwoods	152,221	51%
Not classed by CLC ^a	76,095	26%
Scrub	15,237	5%
Wet Flatwoods	10,966	4%
Sandhill	8,869	3%
Scrubby Flatwoods	8,693	3%
Unimproved/Woodland Pasture	3,151	1%
Rural Open	2,090	1%
Successional Hardwood Forest	1,689	1%
Basin Swamp	1,561	1%
Rural Open Forested	1,560	1%
Other	13,724	5%
Total	295,856	100%

CLC Mesic Flatwoods overlapped with FLVEG (statewide)

FLVEG classes	Acres	Percent
		CLC Mesic Flatwoods
Pinelands	309,166	38%
Dry Prairie	259,198	32%
Freshwater Marsh and Wet Prairie	28,990	4%
Shrub and Brushland	28,800	4%
Hardwood Hammocks and Forest	28,385	3%
Mixed Pine-Hardwood Forest	25,627	3%
Mixed Wetland Forest	23,198	3%
Cypress Swamp	20,013	2%
Hardwood Swamp	15,386	2%
High Impact Urban	12,682	2%
Shrub Swamp	12,060	1%
Xeric Oak Scrub	10,111	1%
Bare Soil/Clearcut	9,948	1%
Other	38,597	5%
Total	822,163	100%

FLVEG Pinelands overlapped with CLC (statewide)

CLC classes	Acres	Percent
		FLVEG Pinelands
Not classed by CLC ^a	5,413,422	83%
Mesic Flatwoods	309,166	5%
Coniferous Plantations	204,771	3%
Sandhill	149,306	2%
Upland Pine	115,562	2%
Wet Flatwoods	58,562	1%
Scrub	47,437	1%
Other	233,380	4%
Total	6,531,604	100%

^a The mesic flatwoods class was assigned during the course of reviewing other focal natural communities; a comprehensive review of mesic flatwoods was not conducted therefore many areas classified as pine flatwoods or pinelands by FLUCCS and FLVEG were not classed by CLC.

APPENDIX P. Overlap of upland pine mapped by the Cooperative Land Cover map (CLC) with Land Use Land Cover (FLUCCS) and Florida Vegetation and Land Cover (FLVEG). Classes that contribute less than 1% of total overlap are grouped into "Other" in each table.

CLC Upland Pine overlapped with NFWMD FLUCCS

NFWMD FLUCCS classes	Acres	Percent CLC
		Upland Pine
4100: Upland Coniferous Forests	90,351	58%
4340: Hardwood Coniferous - Mixed	23,053	15%
2130: Woodland Pastures	9,162	6%
6250: Hydric Pine Flatwoods	7,315	5%
4410: Coniferous Plantations	5,144	3%
6300: Wetland Forested Mixed	4,419	3%
4110: Pine Flatwoods	4,171	3%
3300: Mixed Rangeland	3,868	3%
4120: Longleaf Pine - Xeric Oak	2,512	2%
3200: Shrub and Brushland	1,660	1%
Other	3,014	2%
Total	154,669	100%

CLC Upland Pine overlapped with SRWMD FLUCCS

SRWMD FLUCCS classes	Acres	Percent CLC
		Upland Pine
4340: Hardwood Coniferous - Mixed	3,548	36%
4100: Upland Coniferous Forests	1,897	19%
4130: Sand Pine	1,551	16%
4410: Coniferous Plantations	1,162	12%
4200: Upland Hardwood Forests	468	5%
4120: Longleaf Pine - Xeric Oak	288	3%
4430: Forest Regeneration Areas	217	2%
3300: Mixed Rangeland	162	2%
2130: Woodland Pastures	150	2%
3200: Shrub and Brushland	98	1%
6300: Wetland Forested Mixed	96	1%
Other	251	3%
Total	9,888	100%

CLC Upland Pine overlapped with FLVEG (statewide)

FLVEG classes	Acres	Percent CLC
		Upland Pine
Pinelands	115,562	69%
Mixed Pine-Hardwood Forest	14,944	9%
Sandhill	8,650	5%
Hardwood Hammocks and Forest	7,334	4%
Shrub and Brushland	5,755	3%
Mixed Wetland Forest	4,219	3%
Hardwood Swamp	3,546	2%
Bay Swamp	2,047	1%
High Impact Urban	1,579	1%
Other	2,711	2%
Total	166,348	100%
